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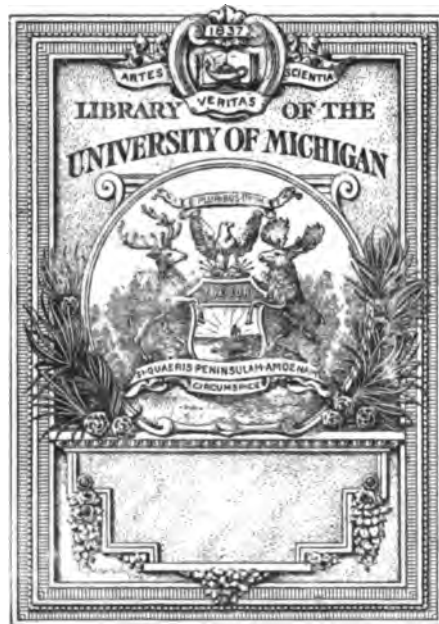
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**BUFFALO
HISTORICAL SOCIETY
PUBLICATIONS**

VOLUME TWELVE

EDITED BY FRANK H. SEVERANCE

**Hinton and Oliver Press
Buffalo**

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Very Respectfully
Henry W Hill

AN HISTORICAL REVIEW OF
WATERWAYS AND
CANAL CONSTRUCTION
IN NEW YORK STATE

BY
HENRY WATLAND P.

Published by the New York State Canal Corporation
at the request of the Canal Board
ALBANY, N. Y. 1910

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CANAL CONSTRUCTION
IN NEW YORK STATE

BY
HENRY WAYLAND HILL, LL. D.

Commerce and industry are the best mines of a nation.

—WASHINGTON.

Commerce is the greatest combiner of all the activities in the world.

—CARL RITTER.

BUFFALO, NEW YORK:
PUBLISHED BY THE
BUFFALO HISTORICAL SOCIETY
1908

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INTRODUCTION

THE present volume is the outgrowth of a study which Henry W. Hill undertook to contribute to a collection of papers, to be prepared for the Buffalo Historical Society, dealing with various phases of the history of New York State waterways. As he became engrossed in the subject, Senator Hill was led to extend the scope of his work, until he had finally accomplished a comprehensive survey of the whole history of the State canals.

Nothing of the character of the present work has before been written. Narratives there are, it is true, of some phases of our canal history, especially of the original construction of the Erie canal. While the present work has been in preparation, two noteworthy contributions to canal literature have been published: Noble A. Whitford's "History of the Canal System of the State of New York," etc., issued in 1906 as a supplement to the annual report of the State Engineer; and A. Barton Hepburn's "Artificial Waterways and Commercial Development," etc. (N. Y. 1909.) Valuable as are both of these works, neither of them performs the particular service which Senator Hill has accomplished. He has written, not merely a history of the State canals, but a history from the viewpoint of a legislator who has been largely instrumental in bringing about the results which he chronicles.

Before entering upon his long career in the State Legislature, Mr. Hill was elected a delegate from the 31st Senate district to the New York Constitutional convention of 1894. In the deliberations of that body, which gave to the State its present revised Constitution, Mr. Hill bore an active part, especially as a member of the committees on suffrage, education and civil service. His most notable work, however, was his advocacy of the enlargement of the Erie, Champlain and Oswego canals. Of that phase of his labors, Charles Z. Lincoln, in his "Constitutional History of New York," says:

"The most elaborate and comprehensive speech on canals in the convention was delivered by Henry W. Hill of Buffalo. Mr. Hill had given the subject long, patient, and thorough study, and had, apparently, examined it from every point of view. The speech is replete with historical information, and with valuable statistics

showing the development of the canal policy in almost every age and country. It contained a general argument in favor of canal improvement, and of such constitutional changes as would readily permit this improvement; and he fortified his argument by numerous facts, figures and historical references to show the value and importance of the canal as a factor in the development of the State, and of its probable continued usefulness if a liberal policy should be adopted. The student of the economic relations of canals will find here the whole subject so carefully considered and so clearly arranged that little need be sought elsewhere. Mr. Hill thought it would be unwise to attempt the construction of a ship canal across the State. He said New York had taken her place at the head of the list of states as a consequence of the construction of our canals, and whether she could retain that position would depend on her attitude toward her great waterways. He urged the preservation and enlargement of the canals, both as a check on railroad charges, and as an important feature of our commercial prosperity; saying that "we ought to remove the present constitutional limitations prohibiting the creation of a debt for their improvement, and provide at once for such improvement."

Mr. Hill's speeches and continued efforts in the convention were largely instrumental in bringing about the adoption of section 10 of article 7 of the Constitution, which was in part formulated by him, authorizing the improvement of the canals "in such manner as the Legislature shall provide by law" and for the raising of funds therefor.

His participation in the Constitutional convention of 1894 was Mr. Hill's first public service in this State. It won him wide recognition as an advocate of canal improvement. That recognition has steadily grown, throughout his subsequent service in the Legislature. He was for five successive terms, 1896 to 1900, a member of the Assembly, and since 1900 has been without interruption and still is a member of the Senate from the 48th district. His is one of the longest terms of unbroken legislative membership in the records of the State.

Known as a "canal champion" when he entered the Legislature, he has never ceased to be one, both in that body, and before the people of the State. In the following pages he shows the part he has borne in establishing and furthering New York's present canal policy; but he has frequently minimized and passed lightly over his own share in debates, etc., while conscientiously recognizing the efforts of his associates. He had personal supervision in the Assembly of the barge canal survey bill. In the Senate, he ably supported the canal referendum bill of 1903, introduced by his colleague, Senator George A. Davis; and was one of its most active and efficient advo-

cates before the people, to the very eve of the November election of that year. It was the most gigantic bonding proposition ever submitted to the voters of any State. No one did more than Senator Hill to arouse a sentiment favorable to the measure.

He introduced and secured the enactment of the ninety-nine million dollar canal bonding law of 1906. In 1902 he had formulated a proposed new amendment to article 7 of the Constitution, known as section 11, providing for the application of the surplus moneys in the treasury to the liquidation of the bonded indebtedness of the State. This amendment passed the Legislature of 1902 and 1903, and was approved by popular vote in 1905. In 1903 he drafted and introduced a proposed amendment to section 4 of article 7 of the Constitution, extending the bonded period from 18 to 50 years, which passed the Legislature in 1903 and 1905, and was approved by popular vote in the latter year, as was also an amendment which he formulated to section 2 of article 6 of the Constitution.

It is not the present purpose to touch upon the many services of Senator Hill, rendered to his constituency and to the commonwealth; but chiefly to recognize his peculiar fitness as historian of the canals; especially of the latest phase of canal policy to which New York State is now pledged.

That Senator Hill writes as an ardent advocate of that policy, and a thorough believer in its wisdom, is apparent on a perusal of his pages; but no reader is likely to accuse him of unfairness in his presentation of facts. He has been at pains to give due recognition to the opposition to the barge canal measures, whether that opposition was expressed in the Legislature, by citizens who may or may not have been influenced by railroad or other interests supposedly hostile to the canals, or by the press. Indeed, this impartial record of the anti-canal forces and methods employed in the memorable campaign of 1903, is one of the features which gives to the present chronicle a peculiar value.

In undertaking the present work, as a contribution to the Publications of the Buffalo Historical Society, Senator Hill at first planned merely a short paper which, with contributions from other pens, was to make up a volume devoted to various phases of the history of canals and waterway improvement in New York State. The subject was not lacking in aspects of local importance; indeed, it would be difficult to find a phase of our history more vital to Western New York and Buffalo. It had, moreover, timeliness, inasmuch as the construction of the barge canal, and the various engineering, industrial and financial problems arising in connection with it, were more and more enlisting the keen interest of the public. As

the author progressed with his work, his desire for thoroughness led him far beyond the bounds originally proposed. Some delay was consequent; but the result is a full presentation of a chapter of New York State history—the story of the barge canals—not elsewhere written; and although it is here written for the first time, the present volume is likely to stand as the definitive history of the subject.

Appended to the principal narrative in this volume, are two of Senator Hill's canal speeches. For years he has been indefatigable both as a speaker and writer on this subject, one noteworthy paper from his pen being the article on "Waterways of the United States," in the "Encyclopædia Americana," prepared at the request of the publishers when Mr. Hill was chairman of the Senate Committee on Commerce and Navigation.

Certain topics related to the general history of New York State waterways, as for instance, the use of steam on the canals, are deferred for separate treatment, probably in the next volume of our series.

On pages 47 to 72 of the present volume, Senator Hill has given some account of the early lock navigation undertakings. In this connection it may be noted that among the unpublished Schuyler manuscripts in the Lenox Library, New York, are preserved correspondence, accounts and other papers which throw some light on the operations of those companies. Papers noted in the collection include a list of stockholders of the Western Inland Navigation Company; report of a survey for the canal at Whitehall; terms for digging, etc.; and letters to Gen. Schuyler, 1792-93, from Barent Bleeker, treasurer of the Northern Inland Lock Navigation Company; Tobias R. Schuyler, William Weston, George Scriba, Reuben Schuyler, Gerard Walton, Horace Seymour, Peter Colt, Tench Coxe, Simeon De Witt, John Porteous, Paul Busti and others. There is a letter from Gen. Schuyler to Gov. Thomas Chittenden of Vermont relative to "opening a canal and lock navigation from the tide of Hudson's river to Lake Champlain," which was laid before the General Assembly, October, 1793, and referred to a committee which recommended the purchase of twenty shares in the company. Other letters from Gen. Schuyler are to David Rittenhouse, Tench Coxe (Apr. 3, 1793), and other engineers and practical men of the time. There are Gen. Schuyler's directions as to keeping construction accounts; field-books of various surveys, including one of the canal and dykes at the falls of the Mohawk (Little Falls), probably made in 1792; a letter from Paul Busti of the Holland Land Company to the president and directors of the Western Inland Lake Navigation Company; and—among many papers of value in this connection—a

document giving the state of transportation from Montreal to Kingston in 1796. The correspondence runs from Jan. 25, 1792, to Oct. 8, 1803, and the collection includes 743 items. Ten letters of the original collection, marked in the card catalogue of the library, as "retained by Miss Schuyler," are from Gen. Philip Schuyler to William Weston, John Porteous, Mr. Philip Schuyler and others, Jan. 16, 1792, to May 8, 1793. In this connection may be mentioned a letter published in the *New York Journal and Patriotic Register*, July 24, 1793, signed "Marcellus" (supposed to be Chancellor Robert R. Livingston) in which a bitter attack was made on Gen. Schuyler, holding him accountable for alleged evils in connection with the Northern and Western companies.

Reference has been made (pp. 67-69) to the report on Roads and Canals made by Albert Gallatin as Secretary of the Treasury, April 4, 1808, and communicated to the Senate, of which George Clinton was at that time presiding officer. It is probably the most comprehensive survey of the state of the roads and canals of the United States at that time that has been made. As printed in *American State Papers*, "Miscellaneous, Volume I," published in Washington in 1834, it fills 197 folio pages.

Secretary Gallatin reviews the status of all canals under construction and of many roads under construction and projected. A most valuable feature of this report is the collection of letters and documents appended to it. These include (1) a letter from Thomas Eddy to Samuel Osgood, dated New York, October 29, 1807, setting forth the plans and operations of the Northern Inland Lock Navigation Company; (2) the detailed examination which was made under the direction of the Northern Company, of the Hudson river. This report is dated Albany, October 30, 1792; (3) letter from Thomas Eddy to Samuel Osgood, dated New York, October 29, 1807, reviewing the early operations of the Western Inland Lock Navigation Company. Appended to this letter are the first and second reports of that company; (4) the Act of the New York Legislature passed March 30, 1792, for establishing and opening lock navigation in the State; (5) the amendment to that Act, passed December 22, 1792; (6) a further amendment to the law relative to lock navigation passed March 9, 1793; (7) a letter from Daniel Penfield to Samuel Osgood, dated New York, January 19, 1808, stating the result of surveys and examinations along the Niagara river from Fort Schlosser to the Devil's Hole, with a view of constructing a canal around the falls.

Of these documents, the first annual report of the Inland Lock Navigation Company, in 1796, and the accompanying data compiled

by William Weston, will be found with some comment in Volume II, Publications of the Buffalo Historical Society. The second report of the Western Inland Lock Navigation Company, apparently a much more scarce document than even the rare first report, will be included in the succeeding volume. Its value will be apparent to any one who reads it, for it gives details of the condition of the work and of the general attempt to establish a navigable waterway across the State, which apparently are not elsewhere to be found.

Secretary Gallatin, for the most part, contented himself with summarizing the reports which he gathered from many sources, with little by way of recommendation. But it was a period when national aid was being sought in every quarter, both for canal and road construction, nor was it until eight years later, when the energy of De Witt Clinton prevailed against all opponents and established the New York canal system on a new basis, that the undertaking was really entered upon as a State enterprise, independent of Federal aid.

A notable group of papers, most of them written at the solicitation of the Buffalo Historical Society, by men who have been influential in determining the canal policy of the State, will constitute the succeeding volume of this series, now in press and soon to be issued. Among these are: "The Canal Improvement Union," by Frank S. Gardner, secretary of the Canal Improvement Union, secretary of the New York Board of Trade and Transportation; an account of the State Commerce conventions of 1899, 1900 and 1901; "New York City's Part in the Reconstruction of the State's Waterways," by Gustav H. Schwab, chairman of the Canal Improvement State Committee; "The New York Produce Exchange and Canal Enlargement," by Henry B. Hebert, chairman of the Canal Association of Greater New York; "The Inception of the Barge Canal Project," by Maj. Gen. Francis Vinton Greene, chairman of the Committee on Canals of New York State," etc.; "The United States Government and the New York State Canals," by Col. Thomas W. Symons, U. S. A., of the Advisory Board of Consulting Engineers for the Improvement of State Canals; with much other related matter of historical importance.

The succeeding issue of this series will also contain the memorial referred to on page 86 of the present volume, and other material bearing upon this important phase of New York State history. In its appendices, the proceedings of the Buffalo Historical Society for 1908 will appear in usual form.

F. H. S.

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AN HISTORICAL REVIEW OF WATERWAYS AND CANALS IN NEW YORK STATE

By HENRY WAYLAND HILL, LL. D.
State Senator, and Vice President of the Buffalo Historical Society.

I. EARLY USE OF NATURAL WATERWAYS.

A critical examination of the history of New York will disclose the predominance of the commercial spirit of its people, who derived their first impressions in the broad domain of statecraft from the Dutch. Its laws and institutions are an expression of this spirit and the embodiment of the political maxim of Hamilton, its greatest creative genius, that "a prosperous commerce is perceived and acknowledged by all enlightened statesmen to be the most useful as well as the most productive source of national wealth."

The early institution of the aggressive policies of the Dutch in the Province of New York gave it a commercial impetus similar to that of the Netherlands in the sixteenth and seventeenth centuries; and the modification of these policies thereafter by the English did not destroy their effectiveness. The commercial spirit of Great Britain, then reaching out to compass the entire globe, rather intensified the interest of the people of this Province in extending their domestic and foreign commerce to include a wider range of subjects, and to other countries, than those to which they were limited under the Dutch regime. The successive occupations of this territory by the aborigines, the Dutch and

English, developed its domestic and expanded its foreign commerce, until at the Revolution the latter was extensive enough to provoke the jealousy of the mother country.

This commercial development was made possible at first only by the utilization of the natural waterways of the Province, and later by the establishment of navigable water communication between the Great Lakes on the west and tide-water on the east. It was foreseen that this would enable New York to do much of the carrying trade of several interior states and to control to some extent their domestic and foreign commerce. This would add immensely to the domestic and foreign commerce of New York. It has so proved. Furthermore, the volume of tonnage passing through this State over its artificial waterways was so much greater than was anticipated by their projectors, that it became necessary, in order to meet the increasing demands made upon them, to enlarge their capacity on two occasions; and now a third enlargement is in progress. An account of the origin, extension and improvement of the State's waterways together with the resulting benefits therefrom to the State forms an essential part of its history.

It is my purpose in this paper to review that part of the State's history. It may properly be prefaced by an historical review of transportation over the lakes, rivers and other natural waterways of the State. This necessitates our tracing from its aboriginal occupation the efforts and achievements of the peoples of the Province and the State of New York through three centuries of its history. Such a review, however, must deal with events more or less disconnected, owing to the frequent hostile invasions of this territory prior to the Revolution and the isolated data relating to the period. These invasions were often predatory and intercepted the usual routes of trade and travel, to the annoyance of the inhabitants and the serious interference with their early commercial relations. The data relating to the aboriginal and early Dutch and English trade relations of the Province are scattered through early Dutch, French and English papers and are incomplete; but from what exists, some conception may be formed of the extent of the use of

the lakes, rivers and other waterways at that time. This is an important phase of the history of transportation in this State and naturally precedes the era of canal construction, which is to be reviewed later in this paper.

The foresight of the Dutch, English and American pioneers in this Province and citizens of this State in discerning the adaptability of its topography to waterway construction and in taking advantage of this and of its unique position between the Great Lakes on the west and the Atlantic Ocean on the east, across whose territory must ultimately pass much of the vast tonnage of the states bordering on these bodies of water, was as keen and comprehensive as that which dominated the policy of the Greeks in taking possession of and colonizing for commercial purposes the most strategic places in and about the Mediterranean sea.

From the first occupation of this territory by the Dutch, as already stated, the genius of its people has been essentially commercial, as contradistinguished from that which is agricultural, or industrial; although the people of this State have excelled in both these latter fields of human endeavor. The commercial spirit, however, has predominated over the others and its cities have become great commercial centers, far outranking ancient Tyre, said to be "the crowning city [of Phoenicia], whose merchants were princes, whose traffickers were the honorable of the earth." The history of the commercial development of this State would fill several volumes and only certain phases of it are presented in these papers. Some of the contributors to the present volume had an active part in the movement, which will result in the construction of a system of barge canals from the Hudson to Lake Erie and Ontario on the west and to Lake Champlain on the north. The Buffalo Historical Society is thus fortunate in being able to publish the original papers of some of the prominent participants in one of the largest projects ever undertaken in this or any other State.

This subject has so dominated the thought of successive generations and it is so interwoven through all the important Colonial, Provincial and State legislation, that it would be

presumptuous on my part to claim that this or any other paper is complete in itself. I trust, however, that a resume of the successive steps taken and a summary of the principal constitutional measures and legislative acts in the movement may serve to keep alive the interest of the people in a great public improvement, which is regarded by students of transportation problems as indispensable to the State's commercial supremacy. This is especially so since the renaissance of interest in canal construction and in transportation by water in Europe and America is now as marked as was the Italian Renaissance of learning under the Medici family, stimulated by the spirit of discovery and exploration of the fifteenth century.

For three fourths of a century, through their canals, the people of this State have done an appreciable part of the carrying trade of seven great inland states and thereby added millions of dollars annually to their wealth. The evolution of transportation over the State's waterways from the Indian canoe to the modern thousand ton barge has been going on for three centuries. No one will undertake to say just how much earlier the aborigines utilized the water courses of the territory now comprising New York, for no one knows whether the league of the Five Nations was formed as far back as 1400-1450, as stated by Lewis Morgan, or an hundred years later; but, whenever it occurred, it is certain that from the time when the "Hodenosaunee" or "the people of the Long House" migrated from the territory north of Montreal up the St. Lawrence with their primitive belongings in canoes, crossed Lake Ontario and settled in central New York along the lakes named after them, the natural water-courses of this State have been uninterruptedly utilized. The eastern door of the Long House was in the keeping of the Mohawks in the vicinity of Albany, while the western door was guarded by the Senecas of the Genesee valley and on the shores of Lake Erie; and after the Tuscaroras were added to the confederacy in 1714, by the latter nation also, who formed the outer guard in Niagara County. The Central Council was with the Onondagas, south of Syracuse.

In a poem entitled "Onondaga Castle" the Six Nations are thus described:

"Proud rulers of the far-extended north,
Their war-song waked each echoing woody dell,
With dreadful note of wild, untutored war,
And on a thousand lakes of silver tide,
Or deep majestic streams, their hostile fleets
Poured silent forth, t' avenge the mutual wrong,
And wreak a dreadful vengeance on the foe."

East of the Long House, near the head waters of the Hudson, dwelt the Mohicans. Still farther east on the banks of the Connecticut were the Hohegans, or river Indians. These latter and other tribes occupying eastern New York were said to belong to the Algonquin family, which Champlain found in possession of the St. Lawrence valley upon his arrival in 1608. Prior to the Iroquois Confederacy the Algonquin family occupied territory southeast and northeast of the Hudson, and the Huron-Iroquois families extended northwest into Canada and southwest into Pennsylvania and Ohio. Long before its discovery, Lake Champlain had been the battleground of the Algonquin and Iroquois nations, and both the lake and its outlet were called after the latter nation. The Indians informed Samuel Champlain that the mountains on the east belonged to the Iroquois, and that the large islands at the north end of the lake were formerly occupied by the same tribe. Most of the lakes and rivers of New York take their names from the Indian tribes, which had settled along their shores and on their banks. The establishment of the Iroquois Confederacy as well as the migration and intercourse of the various nations with each other are evidences of their intercommunication by water. The use of canoes on the lakes and rivers of the State and the well-beaten carrying-places, such as that at Cohoes, that at Little Falls and that at Wood creek, are also evidences that the aborigines, long before the advent of the white man into this territory, anticipated him in the use of water transportation from lakes Champlain and George and the Hudson river on the east to lakes Oneida,

Ontario, Onondaga, Cayuga, Seneca and Erie on the west, interrupted only by short carrying-places. This was a most charming succession of natural waterways through fertile valleys, teeming with wild animals and clad in the primeval forests, vocal with the songs of birds. This was a paradise for the aborigines.

"The woods were filled so full with song,
There seemed no room for sense of wrong,"

Sings the poet David Gray:

". . . by these else untrodden shores they stood,
Embodied spirits of the solitude.
No hoary legend of the past declares
Through what uncounted years our home was theirs,
How oft they hailed, new glittering in the West,
The moon, a phantom-white canoe, at rest
In deeps of purple twilight—this alone
Of all their vanished story has not flown."

It is quite remarkable that nations given over to so migratory and precarious a life as that of the aboriginies, were able to establish and maintain routes of trade and travel through this territory.

Cadwallader Colden, a graduate of Edinburgh University in 1705, and afterwards Surveyor General and Lieutenant Governor and acting Governor of New York, and as such familiar with the topography of much of the Province, in the report of a committee of the Council held at New York, November 6, 1724, says that "goods were daily carried from this province to the Sennekes as well as to those Nations that lie nearer, by water all the way, except three miles (or in dry seasons, five miles) where the traders carry over land between the Mohawks river and Wood creek that runs into Oneida lake, without going near either the St. Lawrence river or any of the lakes upon which the French pass, which are entirely out of the way." The early explorers and the Dutch and English traders of New York found the Five Indian Nations in possession of much of the fair domain of the interior of the State and in easy communication with

each other over its streams, rivers and lakes, which are so connected as to form almost a continuous system of natural waterways over a large part of its territory. Freely did the aborigines traverse these waters in their canoes, laden with the marketable products of the forests and the fields, which formed picturesque flotillas in those early days, when the French on the north and the Dutch and English settlers on the east and south were contending for the fur trade of the nations, comprising the Iroquois Confederacy.

In the masterly defense of "an Act for encouragement of the Indian Trade and rendering it more effectual to the inhabitants of this Province and for prohibiting of the selling Indian Goods to the French," passed in November, 1720, made by Cadwallader Colden, may be found a graphic portrayal of the distribution of the Five Indian Nations along the water-courses of central New York and of their access to the trading-houses of the Province, with whom it was not only feasible but advantageous to maintain exclusive trade relations as contemplated by the framers of that act. In his "Memorial concerning the Furr-Trade of the Province of New York," presented to Sir William Burnet, Captain General and Governor of the Province, under date of November, 1724, in describing the method of transportation among the aborigines, he says:

"The Method of carrying Goods upon the Rivers of *North America*, into all the small Branches, and over Land, from the Branches of one River to the Branches of another, was learned from the *Indians*, and is the only Method practicable through such large Forests and Deserts as the Traders pass thro', in carrying from one Nation to another, it is this; the *Indians* make a long narrow Boat, made of the Bark of the Birch-tree, the Parts of which they join very neatly. One of these Canoes that can carry a Dozen Men, can itself be easily carried upon two Men's Shoulders; so that when they have gone as far by Water as they can (which is further than is easily to be imagined, because their loaded Canoes don't sink six inches into the Water), they unload their Canoes, and carry both Goods and Canoes upon their Shoulders over Land, into the nearest Branch of the River they intend to follow. Thus, the *French* have an easy Communication with all the Countries bordering upon the River of *St. Laurence*, and its Branches, with all the Countries bordering upon

these In-land Seas, and the Rivers which empty themselves into these Seas, and can thereby carry their Burdens of Merchandize thro' all these large Countries, which could not by any other means than Water-carriage be carried thro' so vast a Tract of Land.

"This, however, but half finishes the View the *French* have, as to their Commerce in *North-America*. Many of the Branches of the River *Misissippi* come so near to the Branches of several of the Rivers which empty themselves into the great Lakes, that in several Places there is but a short Land-Carriage from the one to the other. As soon as they have got into the River *Misissippi*, they open to themselves as large a Field for Traffick in the southern Parts of *North-America*, as was before mentioned with respect to the Northern Parts. If one considers the Length of this River, and its numerous Branches, he must say, *That by means of this River, and the Lakes, there is opened to his View such a Scene of inland Navigation as cannot be paralleld in any other Part of the World.*"

Proceeding further in this most instructive Memorial he says:

"From *Albany* the *Indian Traders* commonly carry their Goods sixteen Miles over Land to the *Mohawks River* at *Schenectady*, the Charge of which Carriage is *Nine Shillings, New York Money*, or *Five Shillings Sterling* each Waggon-Load. From *Schenectady* they carry them in Canoes up the *Mohawks River*, to the Carrying-place between the *Mohawks River*, and the River which runs into the *Oneida Lake*; which carrying-place between is only three Miles long, except in very dry Weather, when they are obliged to carry them two Miles further. From thence they go with the Current down the *Onondaga River* to the *Cataracui Lake*. The Distance between *Albany* and the *Cataracui Lake* (this Way) is nearly the same with that between *Albany* and *Monreal*; and likewise with that between *Monreal* and the *Cataracui Lake*, and the Passage much easier than the last, because the Stream of the *Mohawks River* is not near as strong as the *Cataracui River* between the *Lake* and *Monreal*, and there is no Fall in the River, save one short one; whereas there are (as I have said) at least five in the *Cataracui River*, where the Canoes must be unloaded. Therefore it plainly follows, that the *Indian Goods*, may be carried at as cheap a Rate from *Albany* to the *Cataracui Lake*, as from *Albany* to *Monreal*. So that the People of *Albany* plainly save all the Charge of carrying Goods two hundred Miles from *Monreal* to that Part of the *Cataracui Lake*, which the *French* have to carry before they bring them to

the same Place from *Monreal*, besides the Advantage which the *English* have in the Price of their Goods.

"I have said, That when we are in the *Cataracui Lake*, we are upon the Level with the *French*, because here we can meet with all the *Indians* that design to go to *Monreal*. But besides this Passage by the *Lakes*, there is a River which comes from the Country of the *Sennekas*, and falls into the *Onondaga River*, by which we have an easy Carriage into that Country, without going near the *Cataracui Lake*. The Head of this River goes near to *Lake Erie*, and probably may give a very near Passage into that Lake, much more advantageous than the Way the *French* are obliged to take by the great Fall of *Jagara*, because narrow Rivers are much safer for Canoes than the Lakes, where they are obliged to go ashore if there be any Wind upon the Water. But as this Passage depends upon a further Discovery, I shall say nothing more of it at this time.

"Whoever then considers these Advantages *New York* has of *Canada*, in the first buying of their Goods, and in the safe, speedy, and cheap Transportation of them from *Britain* to the *Lakes*, free of all manner of Duty or Imposts, will readily agree with me, that the Traders of *New York* may sell their Goods in the *Indian Countries* at half the Price the People of *Canada* can, and reap twice the Profit they do. This will admit of no Dispute with those that know that Strouds (the Staple *Indian Commodity*) this Year are sold for *Ten Pounds* apiece at *Albany*, and at *Monreal* for *Twenty-five Pounds*, notwithstanding the great Quantity of Strouds said to be brought directly into *Quebeck* from *France*, and the great Quantities that have been clandestinely carried from *Albany*. It cannot therefore be denied that it is only necessary for the Traders of *New York* to apply themselves heartily to this Trade, in order to bring it wholly into their own Hands; for in everything besides Diligence, Industry, and enduring Fatigues, the *English* have much the Advantage of the *French*. And all the *Indians* will certainly buy, where they can, at the cheapest Rate.

"It must naturally be objected, *that if these things are true, how is it possible that the Traders of New York should neglect so considerable and beneficial Trade for so long time?*"¹

It will thus be seen that Cadwallader Colden, in the early part of the eighteenth century, in this most interesting Memorial, was called upon as a loyal citizen of this Province

1. The above extract is here printed *verb. et lit.* from the 1747 edition (London) of Colden's "History of the five Indian nations of Canada." The original New York edition (1727) does not contain this memorial.

to present the arguments for and advantages of the New York, Hudson, Mohawk and Lake Ontario route for commercial purposes then utilized by the English, over those of the Montreal, St. Lawrence and Ontario route, then utilized by the French. For nearly two centuries, the struggle has gone on, and the relative merits of these two rival routes have challenged the attention of the transportation interests of both countries; and still, owing to the proposed enlargement of the Welland canal, decided upon at the last session of the Canadian Parliament and to the advocacy of the Georgian Bay-Ottawa ship canal, which would be very costly to construct and unprofitable to operate by reason of the delays in locking vessels through it, the question is far from final solution.¹ But in the course of political affairs the position of the English has undergone a complete change, and now they naturally favor the Montreal-St. Lawrence route in preference to the New York route; and we are advancing the arguments in favor of the New York route, which Mr. Colden, Governor Burnet and other subjects of the Crown advanced in its favor and against the contention of the French, in the early part of the eighteenth century. Let it be said in justice to Cadwallader Colden that no man before him, and few, if any, after him have had a keener grasp of the advantages, possessed by this State by reason of its geographical position and natural facilities for great commercial development and who have labored more intelligently to so shape the policy of the Province that it would tend to promote that development, than did he. His university and professional training, amplified by travel and matured in the school of practical experience, enabled him, possessing as he did a keen imagination, to take a comprehensive view of the commercial possibilities of this Province, intersected as it was by a system of natural waterways, which could easily be made to intercommunicate, and lying as it does between an extensive system of waterways on the west and the Atlantic on the

1. This route is now (1908) said to be abandoned by the Dominion Government.

east, and to present such conditions in a statesmanlike manner to the people of his generation.

The resume of commercial conditions recited in the Colden Memorial shows that prior to that time trading stations had been established in various parts of the Province. It may elucidate this subject to mention some of these and the steps leading up to them.

As early as 1614, Henry Christiaensen, a Dutch captain merchant, sailed up the Hudson to the head of navigation and resolved "to provide a permanent station there and to invite a regular flow of trade along the avenues which nature had provided along the Mohawk from the west and along lakes Champlain and George from the north at the point where these trade routes converged." This was a little below the place, which was afterward the terminus of the Champlain and Erie canals. It is the first recorded attempt on the part of the whites to unite the commerce of the north and west at the Hudson with that of the south. This station was protected by "breastworks of palisades" surrounded by a moat and known as "Fort Nassau."

The Netherland Company, incorporated in 1614 by the States General of Holland, was given a monopoly of trade and the exclusive navigation of such rivers and bays as were discovered.

The statement that Dutch officers of this company entered into trade relations with the chiefs of the Five Nations at a conference held near Fort Nassau in 1617, is disputed; whatever the fact may be, but little was accomplished owing to the expiration of the charter of the company in 1618, which resulted in the application of several other associations of individuals for charter privileges. These were ultimately merged in the Dutch West India Company, incorporated in 1621 for commercial purposes principally, but with the additional responsibility of the colonization, government and defense of its territory. This entailed upon the company burdens that hampered its growth and as time went on largely depleted its treasury. Thus early did the legislation affecting the Province assume a commercial character, dominated as it was by the instinct of the Dutch

for world-wide trade relations, which had enabled Antwerp to wrest from Venice the sovereignty of the sea and to become the emporium of Europe. After its siege by Philip II. of Spain, this sovereignty passed from Antwerp to Amsterdam. The harbors of these two ports were successively frequented by the merchant marine of many nations, and this begot in the people a keen interest in commercial affairs, which largely shaped the policy of the Dutch settlers in this Province. In 1626 Peter Minuit, a merchant pioneer from Wesel on the Rhine, purchased of the Red men Manhattan Island for the sum of \$24, and it became within two centuries the emporium of the New World. In a report of the Dutch West India Company made in November, 1629, is a statement of the commerce of that company, including its shipping and naval facilities, which gave employment to 15,000 seamen and soldiers.¹

II. DEVELOPMENT OF INLAND TRADE BY THE DUTCH.

The commercial genius of the Dutch, which, in the plenitude of their maritime power, afforded them "the keenest sense of exultation" inspired their colonists to lay the foundations of the metropolis of the Western Hemisphere. For nearly three centuries the spirit and instinct of its people have been largely commercial, and this is the philosophical explanation of its phenomenal growth. No sooner had the Dutch settlers become acquainted with "the abundance of lakes, some large, some small, besides navigable kills, which are very like rivers, and multitudes of creeks, very useful for navigating over all parts of the country," described on a map of New Netherland, as appears in a Report of the West India Company, in July, 1649,² than they began to establish trading posts and to locate colonies.

In the "Draft of Freedoms and Exemptions for New Netherland," exhibited May 24, 1650, Patroons were authorized to extend the limits of their colonies "four leagues

1. 1 Col. Hist. N. Y., 40, 41.

2. *Ib.* 294.

along the coast or on one side of a navigable river, or two leagues along both sides of a river and as far inland as the circumstances of the occupants would permit." All Patroons, colonists and inhabitants of New Netherland were permitted "to trade along the coast from Florida unto Newfoundland, provided they return with all the goods they obtain in barter, first to the island of the Manhattes, and pay a five per cent. duty to the Company, in order, if possible, to be sent thence to the aforesaid countries after proper inventory of all the cargo."¹

The monopoly of trade between New Netherland and other colonies which were given to the Dutch India Company, was done away with in 1638, and the coastwise and internal commerce were opened up to all merchants of Holland by the Freedom and Exemptions, "exhibited" (i. e., published) in 1640.² All these grants had a direct bearing on the growth of New Netherland, notwithstanding the oppression and restraints, imposed upon the colonists by the directors and agents of the company, concerning which frequent complaints were made to the States General. The Home Government was slow to make appropriations for the Dutch West India Company, notwithstanding that company had done much to break the power of Spain on the sea and to hold the commerce of the Atlantic for the Netherlands. The drain on its treasury, however, was large and its power greatly weakened, owing to its naval and governmental expenditures required by its charter. "In the spring of 1623 a ship sailed up to the Maykans," an estimated distance of 132 miles, "and the colony built Fort Orange on Castle Island," says W. M. Beauchamp. He also says that James Elkens traded near Fort Orange in 1633 and that he had lived four years with the Indians.³ The Mohawks had many bear skins. The Mahicans, who were frequently at war with the Mohawks, sold much of their lands in 1630 near Rensselaerwyck to Kiliaen Van Rensselaer and left the

1. *Ib.* 402, 403.

2. *Ib.* 119.

3. "History of the New York Iroquois" (N. Y. State Museum Bulletin 78), 174, 175.

Hudson valley. Thereafter friendly relations sprung up between the Dutch and the Mohawks, which continued until they (the Dutch) were superseded by the English. In the meantime the Dutch supplied the Indians with strouds, awls, knives, hatchets, guns and many other articles and in exchange the Dutch received furs and lands.

Before the advent of the white man, the aborigines had supplied themselves with polished stone implements such as celts, gouges, adzes, hoes, spades, stone balls, ornaments, hammer-stones, mullers, pestles, potstones, stone plummets, sinew stones, boatstones, cups, mortars, double-edged slate knives, women's knives, gorgets, grooved axes, perforators, grooved boulders, beveled and notched flint spear-heads, arrow-heads, quartz and other scrapers, native copper implements, especially the Mahaikans, or River Indians; and with a great variety of wooden articles and implements. These and other things enabled them to maintain trade among themselves and afforded the means for supplying their primitive wants. Adriaen Van der Donck in commenting on the negotiations with the Indians said: "In the year 1645, we were employed with the officers and rulers of the colony of Rensselaerwick in negotiating a treaty of peace with the Maquas, who were and still are the strongest and fiercest Indian nation of the country; whereat the Director General William Kieft on the one part, and the chiefs of the Indian nations of the neighboring country on the other part, attended."¹ This continued as long as the Dutch had possession of the territory, and enabled the nations in the Confederacy to enter into and maintain extensive trade relations with the Dutch.

Van der Donck in his account of "Chahoes" says that in 1656 "an Indian accompanied by his wife and child with sixty bear skins, descended the river in his canoe in the spring when the water runs rapid and the current is strongest, for the purpose of selling his beavers to the Netherlands. This Indian carelessly approached too near the falls before he discovered his danger, and notwithstanding his utmost efforts to gain the land, his frail bark, with all on

1. *Ib.* 189, 190.

board, was swept over by the rapid current and down the falls, his wife and child were killed, his bark shattered to pieces, his cargo of furs damaged, but his life was preserved."

This misadventure may have given the Mohawk name to the Cohoes, which means "a canoe falling." The statement shows that the river was used at a very early day by the Indians for their commercial purposes. In his history of the New York Iroquois, Dr. William M. Beauchamp, an authority on Indian lore, says:

"It was in December 1634 that Arent Van Curler made a trip from Fort Orange to Oneida, passing through all the Mohawk towns, then on the south side of the river. There were four castles and some villages, the first of which he reached on the morning of the third day. These were Onekagoncka, Canowarode, Senatsycrosy, Netdashet, Canagere, Sohanidisse, Osguage, Cawaoge, and Teno-toge. His itinerary is of interest, and it is the earliest we have of that part of New York. He left the Mohawk at the last castle, taking the usual direct trail over the hills to Oneida, then on the upper waters of Oneida creek. It will be remembered that most trails are not very old, changing as the towns changed place. At Oneida he considered himself in the Seneca country, but met a deputation of Onondagas there, being the first mentioned of these two nations by name. In an Oneida speech or song, which he recorded, the names of all the upper Iroquois may be seen. He returned the same way in January, 1635."¹

The interior of the Province at this time and for an hundred years later, notwithstanding the stipulations of the Treaty of Utrecht, concluded in 1713, in relation to the French and English possessions in America, was subject to the predatory and hostile invasion of the French and Indians from the north of Lake Ontario which was known as Lake Cataracqui. Expedition after expedition was made into this territory and many were put to death.² At first the Dutch and afterwards the British resisted these invasions, but they continued with more or less frequency until the Revolution.

1. "History of the New York Iroquois" (N. Y. State Museum Bulletin 78), 179.

2. 1 Col. Hist. N. Y., 146, 151, 153, 186, 190, etc.

This rendered the life of the aborigines unsettled and precarious, and they were kept in constant trepidation. Their only means of travel along the water courses was in canoes, which the Iroquois made of elm bark and some of them were large enough to accommodate thirty persons and were less easily managed than were the Canadian birch canoes, which as Elkanah Watson said, were "light and sail like ducks upon the water."

In 1684 the Provincial Assembly passed an act prohibiting ships and other vessels from throwing overboard their ballast into the harbors and rivers and creeks and thereby obstructing navigation. In 1687 the Onondagas appealed to the Mayor and Common Council of Albany to supply them with six large guns for their fort at Onondaga, and they recommended that a fort be built at Oswego to protect them from the incursions of the French from Canada.

Trading posts were established at New Amsterdam as early as 1613; at Fort Nassau, also called Fort Orange, or Beaverwyck, in 1614; at Fort Frederick on Lake Champlain in 1731; at a carrying-place between Lake Champlain and the Hudson known as Fort Qyius and Fort Edward; at Schenectady (the early Mohawk capital, the Indian name of which was "Con-nugh-ha-rie-gugh-ha-rie," meaning "a great multitude collected together"); at Canagere, a castle, called "Wetdashet" by Van Curler, in 1634; at Canajoharie, at Little Falls—called by Robert Livingston "the Little Carrying Place"; at Fort Stanwix, the Great Carrying Place; at Fort Bull, at the Three River Point, at Fort Ontario (Oswego) as early as 1727;¹ at Fort Onondaga, at Onnachee, in the town of Hopewell; at Otihataugue on the Salmon river, also called LaFamine; at Seneca Falls, at Geneva, at Tirandaquet (Irondequoit bay), at Kanadesaga, at Cayuga, the residence of hereditary chieftains of the Senecas; at Niagara as early as 1720;² at Black Rock, at Buffalo creek, at Portland, at Mayville, at Olean, at Cananda and at other places along the waterways of the Province from Long Island Sound, the Hudson river, Lake George

1. 1 Doc. Hist. N. Y., 290, 291, 295, 302, 303.

2. 5 Col. Hist. N. Y., 588.

and Champlain on the east to lakes Cayuga, Seneca and Erie on the west.

Major Abraham Schuyler, son of Peter Schuyler, was at the head of an expedition establishing a settlement at Tiran-daquat (Irondequoit) creek in 1721, which was said by Governor Burnet to be the "beginning of a Great Trade . . . with all the Indians upon the Lakes."¹ Durant's Memorial relative to the French post at Niagara contains information as to the elder Joncaire's journeys to and about Niagara and the beginnings of extensive trade relations in Western New York, and an account of transportation on its lakes and rivers.

It will thus be seen that there were numerous trading stations within and without the territory of the Five Nations and that several of them were in water communication with each other, but the tonnage over the waterways was not large in the western part of the Province. Still the Senecas occasionally journeyed as far east as the Hudson, making their journeys in canoes through the natural water-courses of Central New York. The Iroquois canoes were heavy and more or less awkward, but large enough to accommodate thirty men, but so shallow as not to enable them to venture upon the lakes in storms. Some of them were large enough to carry six thousand pounds in addition to the Indians necessary to paddle them. They moved rapidly along the lakes, rivers and streams of the State and were easily conveyed over portages where necessary.

There was a rivalry between the Dutch inhabitants and the French Canadians on the north to control the fur trade with the Indians resident in this Province. Peter Stuyvesant as early as 1667 wrote to the Duke of York on behalf of the Dutch inhabitants in regard to this trade as follows:

"Since the Trade of Beaver, (the most desirable comodity for Europe) hath allwayes been purchased from the Indyans, by the Comodities brought from Holland as Camper, Duffles, Hatchetts, and other Iron worke made at Utrick &c much esteemed of by the Natives, It is to be fear'd that if those comodities should fail them, the very Trade itself would fall, and that the french of Canada, who

1. *Ib.* 632, 633.

are now incroached to be too neare Neighbours unto us (as but halfe a days journey from the Mohawkes) making use of their Necessities and supplying them, they will in time totally divert the Beaver Trade, and then the miserable consequences that will ensue, wee shall not have one shipp from Europe to trade with us."¹

This instinct of the Dutch to control all the trade of this territory and the West against the efforts of those in the province of Canada who have sought to divert it passed to later generations and has dominated the policy of New Yorkers since that time.

After the Province passed under the dominion of Great Britain and underwent a change in name as well as in government, by a special Act of Parliament free trade was granted to the Dutch settlers for a period of seven years after the surrender of New Amsterdam to the English, to the extent of "three shipp onely." This was to enable those resident in the colony to continue their commercial relations with the Netherlands whither they obtained many things in common use that could not be supplied by the English.

The loss of New Netherlands to Holland resulted in the cessation of power to the Dutch West Indies Company and it no longer continued to control trade in the province of New York. It took some time for the English, however, to possess themselves of the trade relations which had existed between the Indians and the Dutch for half a century. The English looked with disfavor upon the seven years' privilege extended to the Dutch to carry on trade relations with the settlers in the Province, lest it have "an unhappy influence by opening a way for forrainers to trade with the rest of his Matys [majesty's] Plantations, and preventing the exportation of the manufactures of England, and thereby destroy his Matys Customs and the trade of this Kingdom which is in a great measure upheld by the plantations."² Accordingly the grant was modified by an order in Council made on November 18, 1668, which virtually put an end to the further trading between the Netherlands and the inhabitants of New York.

1. 3 Doc. Hist. N. Y., 164.

2. 3 Doc. Hist. N. Y., 177.

Wherever grants of land were made and settlements established under Governor Fletcher and others along the Hudson and the Mohawk rivers, local trade became active. Commerce was carried on in canoes and batteaux from the Genesee country as far east as Fort Orange and New Amsterdam. The Provincial Governors were alive to its importance and recommended measures from time to time to preserve it. Their official reports to the Lords of Trade contained much valuable information on this and other matters, which show the progress in colonization under the British rule and to which reference is made in this paper. Not only did the aborigines of Central New York utilize the natural waterways of the State extensively in carrying on commerce among themselves and with the whites along the Hudson and Lake Champlain, but the early Dutch and English traders pushed their canoes and batteaux up the Mohawk, transported them from the Mohawk to Wood creek, and through Oneida lake and river into the Seneca river and west to Onondaga, Cayuga and Seneca lakes; or from Oneida river into Lake Ontario and thence westward to the Niagara and Lake Erie. All this was done as early as the last half of the seventeenth century.

III. TRADE ROUTES AND TOPOGRAPHY.

While considering the trade routes and the topography of this Province, it may be well to consider in this connection those of Western New York, notwithstanding that it necessitates our passing over a century in time so to do. Ontario county as originally erected had several navigable streams, such as the Genesee river and its tributaries, the Irondequoit river and bay, Flint, Mud and Salmon creeks, all leading to Lake Ontario, the Susquehanna with its tributaries flowing southward into the Chesapeake bay, and the Alleghany, flowing through the south-western part of the territory and emptying into the Ohio river at Pittsburg. All these were navigable during some months of the year in the latter part of the eighteenth and the early part of the nineteenth centuries, when primeval forests still pro-

tected the sources of water supply in this territory. These were utilized extensively by the early settlers in carrying their products to the markets and in bringing into the territory supplies for their use. Accordingly they served a most important purpose at a time when there were few highways and no railroads and when it was necessary to transport to and from the interior of the State the necessities of life, and agricultural and other products.

This picturesque Genesee country, comprising a large part of Western New York, with its rolling hills, fertile valleys, charming lakes and rivers, was brought into navigable water communication with the sea by means of several rivers.

By the Susquehanna river, whose tributaries are the outlet of beautiful Otsego lake; the Chenango river, the Tioga or Chemung river, receiving in turn as tributaries the Cawanisque, Canisteo, and Conhocton rivers emptying into the Chesapeake bay at Fort Deposit, formerly called Havre de Grace.

By the Allegheny river flowing through the southwesterly part of the State for a distance of forty-six miles and thence southwesterly into the Ohio river and by that into the Mississippi.

By the Genesee river, once navigable for fifty miles of its length between the Pennsylvania line and Lake Ontario, except as interrupted by its falls, where there were carrying places.

By the outlet of Canandaigua, Seneca, and Cayuga lakes and Mud creek, forming Seneca river, that flows into the Oswego river at the Three River Point. The Oswego river empties into Lake Ontario, whose outlet is the St. Lawrence river. Or, by ascending the Oneida river and lake, and Wood creek and over the portage at Fort Stanwix (after 1797, through the Western Inland Lock Navigation Company's canal), into the Mohawk and thence over the portage at Schenectady into the Hudson river. The distance from the head of navigation on the Canisteo to Chesapeake bay was approximately 350 miles. The distance from the navigable waters of the Canisteo to the navigable waters of the

Genesee river was only nine miles, which, it was said, might easily be reduced to a portage of five miles; indeed, the two rivers with but little expense might be connected by a canal as were those of the Mohawk and Wood creek.

The head of Seneca lake, which is thirty-five miles long, was within twenty-two miles of the navigable waters of the Chemung river. Crooked lake, which is twenty miles long and eight miles west of Seneca lake, is within seven miles of the navigable waters of the Conhocton river. Mud, Honeoye, Hemlock and Conesus lakes, all west of Seneca lake, and from six to ten miles long, were within short distance of the navigable waters of the tributaries of the Tioga river.

The distance between the navigable waters of the Alleghany river, to which Chautauqua lake, emptying into the Conewango creek, is tributary, and those of Seneca river, does not exceed fifty miles. The Conewango, flowing into the Alleghany river, was navigable through Chautauqua lake and within nine miles of Lake Erie, where there was a carrying-place for the transportation of merchandise, salt and other commercial products passing between Buffalo creek and Pittsburg. This route was utilized by early traders and afforded reasonably cheap transportation from Niagara to the Ohio river. In 1791 some of the boats on the Ohio river were made of two-inch oak plank and were forty feet long, sixteen feet wide and had a draft of eighteen inches when loaded. They were propelled by four oars, each requiring three men. These boats were roofed like a building as a defense against the attacks of the Indians.¹

The Tonawanda creek was navigable and reduced the land carriage materially between the Genesee river and Lake Erie. All these natural waterways were navigable in the latter part of the eighteenth and the early part of the nineteenth centuries by canoes and small river boats carrying in some months of the year ten tons. Boats carrying 1200 bushels of wheat descended the Tioga and Susquehanna rivers to Baltimore. In 1804 it is said that fifty or sixty

1. 7 Pub. Buf. Hist. Soc., 384.

arks and boats, laden with produce from the Genesee country, besides many rafts, were floated down the Tioga river to the Susquehanna.¹

From Lyons on Mud creek, now called the Clyde river, boats proceeded to Albany or Lake Ontario. Boats descended the Alleghany to Pittsburg. Produce was boated from Bath to Baltimore, from Lyons to Montreal, and from Olean to Pittsburg.

A sloop of forty tons was launched at Geneva on Seneca lake about the year 1796 and a considerable number of sail boats were soon in general use on that lake. Ten miles east of Seneca lake is Cayuga lake, thirty-eight miles in length, and in navigable communication with the Seneca river. Twelve miles east of Cayuga lake is Owasco lake, twelve miles long. Nine miles farther east is Skaneateles, sixteen miles in length; and five miles still further east is Otisco lake, which is eight miles long. North of these is Onondaga lake, famous in Indian lore; and northeast is Oneida lake, which is thirty miles long and one of the most important bodies of water in the State, both from an historical as well as a commercial point of view. The rivers flowing from the Genesee country were navigated by canoes, boats and arks. The latter type of vessels were said to have been devised by a Mr. Kryder for the "Juneata" river, and were made of plank, which were taken apart after they had floated their cargoes down to their destination and were then sold for lumber with but little loss.²

A tourist from Albany to Niagara in 1792 says: "The present carrying places are: Albany to Schenectada, 16 miles; the Little Falls, on the Mohawk river, 2 miles; from the head of the Mohawk to Wood creek, 1 mile; to Oswego Falls, 2 miles; Genesee Falls, 2 miles. Thus you see that there is only 23 miles to cut and lock, in order to carry commerce by water, through an extent of country, capable of maintaining several millions of people."³

1. 2 Doc. Hist. N. Y., 684.

2. *Ib.* 668.

3. *Ib.* 644. Other historic portages are described in Hulbert's "Portage Paths." ("Historic Highways of America," v. 7.)

The early settlers of the Genesee country fully realized, as they state:

" . . . the vast advantages derived from the navigable lakes, rivers and creeks, which intersect and run through every part of this tract of country, affording a water communication from the northern parts of the grant by the Genesee river one way, or by the Seneca river another way into the great lake Ontario, and from thence by Cataraqui, to Quebec, or by the said Seneca river, the Oneida lake, and Wood creek, to Schenectady on the Mohawk river, with only a short land carriage, and from thence to Albany, with a portage of 16 miles; affording also a water communication from almost every township of the southern part of the grant, by means of the different branches of the Tioga river, which joining the Susquehanna affords an outlet to produce, through an immense extent of country on every hand, to Northumberland, and all the towns upon the great branch of this river, down to Maryland and Virginia; and (with a portage of 12 miles) even to Philadelphia with small boats; and when the improvements are made in the Susquehanna, and the projected canal cut between the Schuylkill and that river; there will be an uninterrupted good water communication for boats of 10 or 15 tons from the interior parts of the Genesee country, all the way to Philadelphia."¹

A survey of the south shore of Lake Erie was made in 1789 and flour was then being boated from Presque Isle to Niagara.² In 1771 David Ramsay says that

"I . . . purchased a large battoe at Skennecktity, and procured credit to the amount of 150l. York currency's worth of goods, and proceeded with these up the Mohawke river to Fort Stanix, Crossed the portage down Wood creek, to Lake Canowagas, from thence down the river that empties into Lake Ontario, at Oswego; and proceeded up that lake, the river Niagara, to the Falls of that name. Carried my battoe and goods across the portage to Lake Erie; from thence to the river Sold Year, or Kettel Creek, and proceeded up that river for sixty miles, where we met tribes of different nations of Indians encamped for the purpose of hunting. I [here] continued bartering my goods for the furs till towards January 1772."³

1. 2 Doc. Hist. N. Y., 647.

2. 7 Pubs. Buf. Hist. Soc., 369.

3. Ramsay's narrative is given in P. Campbell's "Travels in the interior inhabited parts of North America in the years 1791 and 1792" (Edinburgh, 1793), an exceedingly scarce book. It is reprinted, 7 Pubs. Buf. Hist. Soc. (1904), 437-451.

Ramsay traversed the usual route of that day in going from the Mohawk valley to Lake Erie and its tributaries. Travellers to the Genesee country upon reaching the Three River Point turned up the Seneca river.

In 1789 Augustus Porter gives an account of his journey into the wilderness of Western New York. The party met at Schenectady early in May, 1789, was well provisioned and had two boats each. In Augustus Porter's own narrative, occurs the following:

I assisted in navigating one of the boats, each carrying about twelve hands, and known as Schenectady batteaux, and each navigated by four men.

Leaving Schenectady, we proceeded up the Mohawk to Fort Stanwix (now Rome). In passing Little Falls of the Mohawk the boats and their contents were transported around on wagons. At Fort Stanwix we carried our boats, etc., over a portage of about one mile to the waters of Wood creek. This creek affords but little water from the portage to its junction with the Canada creek, which falls into Wood creek seven miles west of Fort Stanwix. At the portage there was a dam for a sawmill which created a considerable pond. This pond when full could be rapidly discharged, and on the flood thus suddenly made boats were enabled to pass down. We passed down this stream, which empties into the Oneida lake, and through that lake and its outlet to the Three River Point, and thence up the Seneca river and the outlet of Kanadasaga (now Seneca lake), to Kanadasaga settlement, now Geneva. The only interruption to the navigation of this river and outlet occurred at Seneca Falls and Waterloo, then known as Scoys. At Seneca Falls we passed our boat up the stream empty by the strength of a double crew, our loading being taken around by a man named Job Smith, who had a pair of oxen and a rudely constructed cart, the wheels of which were made by sawing off a section of a log, some $2\frac{1}{2}$ or 3 feet in diameter. At Scoys we took out about half our load to pass, consisting mostly of barrels which were rolled around the rapids.

"From the time we left Fort Stanwix until we arrived at Kanadasaga, we found no white persons, except at the junction of Canada and Wood creeks, where a man lived by the name of Armstrong; at Three Rivers Point where lived a Mr. Bingham; and at Seneca Falls, where was Joab Smith. Geneva was at that time the most important western settlement, and consisted of some six or seven families among whom were Col. Reed, father of the late Rufus S. Reed

of Erie. Penn.; Roger Noble and family of Sheffield, Mass., and Asa Ransom, late of Erie County, who had a small shop, and was engaged in making Indian trinkets. At Geneva we left our boats and cargoes in charge of Capt. Bacon, who had come from Schenectady, to Fort Stanwix on horseback and then took passage in our boats. Joel Steel, Thaddeus Keyes, Orange Woodruff and myself, took our packs on our backs and followed the Indian trail over to Canandaigua.

"At Canandaigua (then called Kanandarque) we found Gen. Chapin, Daniel Gates, Joseph Smith (Indian interpreter), Benjamin Gardner and family, Frederick Saxton (surveyor), and probably some half dozen others, all of whom except Smith and Gardner had come on with Gen. Chapin some ten or fifteen days before in boats from Schenectady by Fort Stanwix, Wood creek, Oneida lake, etc., and up the Canandaigua outlet into the very lake itself. This is the only instance within my knowledge of the ascent of boats for transportation so high up; the ordinary point of landing, afterwards, being at Manchester, seven miles down."¹

In 1790 Augustus Porter, while making another journey from Schenectady to Western New York first became acquainted with James Wadsworth, who afterwards was possessed of a valuable Estate at Geneseo. Mr. Porter thus described their meeting:

"I have heretofore remarked that the mode adopted to render Wood creek navigable was to collect the water by means of a mill-dam, thus creating a sudden flood, to carry boats down. Sometimes boats did not succeed in getting through to deep water on one flood and were consequently obliged to await a second one. As we were coursing down the creek during the voyage on our first flood we overtook a boat which had grounded after the previous one, the navigators of which were in the water ready to push her off as soon as the coming tide should reach them. Among these persons were James Wadsworth of Geneseo, with whom I then first became acquainted. He was then on his way to the West, to occupy his property at Geneseo, which has since become so beautiful and valuable an estate."²

Thus occurred the chance meeting on Wood creek of the heads of two of the most prominent families of Western

1. "Narrative of early years in the life of Judge Augustus Porter, written by himself in 1848," etc., 7 Pub. Buf. Hist. Soc., 278-280.

2. *Ib.* 284.

New York in 1790, who were destined to wield a marked influence in the affairs of the State.

The firm of Porter, Barton & Co. which owned vessels on Lakes Ontario and Erie and had a monopoly of the transportation of the goods of the fur companies and Indian traders and supplied the military posts on the Great Lakes, was associated with Matthew McNair of Oswego and Jonathan Walton & Co. of Schenectady. These firms are said to have established "the first regular and connected line of forwarders that ever did business from tidewater to Lake Erie on the American side of the Niagara River."¹

Porter, Barton & Co. had warehouses at Lewiston, Schlosser's and Black Rock. From these three stations there was carried on trade with the early settlers east and west of Niagara over the great lakes and rivers of this State. The goods were hauled overland from Lewiston to Schlosser's over the military road, built by William Steadman in 1763 and loaded onto Durham boats, which were poled, or hauled by oxen, up the river to Black Rock, where the cargoes were transferred onto sailing vessels of twenty tons or more capacity for Lake Erie ports or to be transferred to boats passing through Chautauqua lake, down its outlet into the Alleghany river to Pittsburg.

The Mohawk Wood creek Oneida lake route had been used for a century or more as the highway of trade and travel between the Hudson and Lake Ontario. In a report of Robert Livingston, Secretary of Indian affairs, made in April, 1700, to the Earl of Bellomont, he says:

"I do, therefore, with submission offer that if his Maty be inclined to go to the charge of keeping a garrison to secure the five Nations (without which they are inevitably lost) it cannot be better situate than in the Onnondage river about eight or fifteen miles from the Oneyde lake, at a point where the river that goes to Onnondage, Cayauge & Sinekes comes into ye Onnondage river. This point being fortified, secures all the five nations from the French at once, and Canoes can goe to the very fort walls without any carrying place, except the Little Carrying Place [Little Falls] of 1800 paces, 100 miles from Albany, and the Great Carrying Place [Rome] 80

1. *Ib.* 246, 247.

miles further, reckoned 12 miles; which with some charge could be shortened to 4, there being a creek which leads to the Oneyde river, now full of wood, which may easily be cleared and a small dam made, which being let open will furnish water for canoes or batoes in the dryest time of summer. . . . The French cannot stir to go to the five Nations, but must come up this river from Cadaracqui, and then the river of Onnondage below where this Fort is to be built is very rapid that all batoes and Canoes must be dragged up with great labour, besides a small carrying place of a mile in their way. This Post being secured will be the Key of all our Indians, and they may resort thither for its defence by land & water. . . . It's far more easie to go from Albany with Canoes to Cadaracqui [Ontario] than to go from Mont Royal to Cadaracqui, where the French army have gone up so often, that river [the St. Lawrence] being one of the worst for falls, rapids, fords and shallow places, in the world."¹

This report contains much information in regard to the condition of trade with the Five Nations and the dangers to which their trade relations were exposed from the hostile incursions of the French at the North. In this report, Secretary Livingston makes specific recommendations in the way of the construction of fortifications to protect the Five Nations from the attacks of the French. He also proposes the improvement of Wood creek, which is so named from the abundance of wood that fell into it and obstructed its navigation. His recommendation to construct a dam for storing waters for canoes and batteaux, is the earliest suggestion of the kind in relation to this stream, which was destined to play an important part in the commercial development of the State. It was the highway for a century or more between the East and the West, and we have already seen that a mill-dam was in use there at the time Augustus Porter passed down that creek in 1789. A few years later the Western Inland Lock Navigation Company built a canal between Wood creek and the Mohawk; and now, more than two hundred years after Robert Livingston made his report, the State is constructing a barge canal along the original Mohawk Wood creek and Oneida lake route. The evolution in transportation by water from the canoe to the 1,000

1. 4 Col. Hist. N. Y., 650, 651.

ton barge is seen in this transformation of these bodies of water from tortuous, shallow and obstructed into straightened, deep and navigable channels.

During the months of April and May, 1700, Col. Peter Schuyler, Robert Livingston, and Hendrick Hanse, made a journey from Albany "to visit the Maquas (Mohawks), Oneydes and Onnondages Nations" and reported back to the Earl of Bellomont, Governor of New York, that they were informed that "the Governour of Canada, would especially make 5 forts, viz:

"One at Onyagare, that is, on the mouth of a great river [the Niagara], which comes into Cadaracqui lake on the southwest end thereof.

"The second at Jerondaquat [Irondequoit], that is, on this side of Cadaracqui Lake, where the path goes up to the Sinnekes Castles, about 30 miles from where the Sinnekes have now built their castles.

"The third at Kaneenda [often called the Port of Onondaga], a fishing place of the Onnondages 8 miles from their Castle, their landing place when they came from hunting over the Cadaracqui lake.

"The fourth Fort at Kahioghage [Salmon river], a place where the Oneydes fish being upon a river that vents it self into the south side of Cadaracqui lake about 12 miles from sd lake being a days journey & a halfe from Oneyde.

"The fifth Fort at Ojeenrudde [Ticonderoga], which lies upon the branch of our river, about 3 days journey from a village of the Maquas, called Dekanoge."¹

Prior to this time fortifications had existed for the protection of the trade with the Indians at various points along or near Lakes Ontario and Champlain, but most or all of these had disappeared.

A fort was built at Irondequoit bay by de Denonville as early as July, 1687, and garrisoned by 440 men; and later in the same year another was built at Niagara, garrisoned by 100 men and abandoned the following year. In 1688 the Mohawks advised Governor Dongan to build a fort at Cayonhage at the north of Salmon river and another at Onjadarakte, now Ticonderoga, on Lake Champlain, where there were havens for small vessels.

1. *Ib.* 656.

A fort was built on the east shore of Onondaga lake in 1696, the remains of which were to be seen long afterwards.

The French charged the Five Nations "not to hearken to Corlear, the Governour of N. Yorke for he would kill and destroy them, he would poison them," . . . adding it was "certain the English were designed to make away with the 5 nations." In reply to these charges and to the threats of the French to build the five forts at the places named, Col. Schuyler, Secretary Livingston and Hendrick Hanse replied that the Earl of Bellomont "would rather lose his life than be the inventor of such falsehoods as the French have infused into you."¹ They "did believe that the French would build these forts" and further replied to the representatives of the Five Nations that "the French would not be suffered to build them and that Lord Bellomont would satisfy them, when they visited him at Albany in the Summer."

This throws some light upon the condition of the inhabitants of this Province in the year 1700, when the trading stations were being established along the frontier and the struggle between the French and the English for the control of the trade of the Five Nations was a matter of national diplomacy. The Earl of Bellomont and other Provincial Governors made official reports of all matters relating to trade to the Lords of Trade, and in reply received official instructions for the conduct of such matters in the Province. It is interesting from a commercial viewpoint to know that the Provincial Governors were thoroughly alive to the importance of establishing and maintaining routes and trade relations with the inhabitants of this Province, as shown in the official papers of that period.

Wood creek was visited in 1700 by Col. Romer "to see how much lesse the Carrying place could be made."²

In July, 1702, representatives of the Five Nations located in central New York appealed to Lord Cornbury, Captain General and Governor in Chief of New York, among other things concerning trade at Albany, and prayed that "ye

1. *Ib.* 659.

2. 4 Col. Hist. N. Y., 807.

Path over ye Carrying Place may be mark'd upon ye Trees and ye old Trees taken out of ye Creek [Wood] which much injures the Passage of Canoes, and will much facilitate their coming hither [to Albany]."¹ On July 14th Lord Cornbury answered: "I will not only give directions to have ye Path at ye Carrying Place marked out and ye Creek cleared of old Trees for ye ease and accommodation of all strangers that may be inclined to come & see us, but will upon ye least intimation of your peoples coming this way send guides from hence to convey them hither."²

In September, 1721, Governor Burnet in his official instructions to Captain Peter Schuyler, Junior, said:

"You are with all Expedition to go with this Company of Young Men that are willing to Settle in the Sinnekes Country for a twelve month to drive a Trade with the far Indians that come from the upper Lakes, and Endeavour by all Suitable means to perswade them to come and Trade at Albany or with this new settlement.

"You are not to Trade with the four hithermost Nations but to carry your goods as farr as the Sinnekes Country to Trade with them or any other Indian Nations that come thither.

"You are to make a Settlement or Trading House either at Jerondequate or any other Convenient place on this Side of Cadarachqui Lake upon the Land belonging to the Sinnekes, and use all Lawfull means to draw the furr Trade thither by sending Notice to the farr Indians that you are settled there for their ease and Incouragement by my order, and that they may be assured they shall have Goods Cheaper here than Ever the French can afford them at Canada for the French must have the principall Indian goods from England, not having them of their own.

"You are also to acquaint all the far Indians that I have an absolute promise and Engagement from the five Nations that will not only suffer them to pass freely and peaceably through their Country, but will give them all due Encouragement and sweep and keep the Path open and Clean when ever they intend to come and Trade with this Province. . . . You are to Endeavour to purchase a Tract of Land in the King's Name and to agree with the Sinnekes for it which shall be paid by the Publick in order that it may be granted by Patent to those that shall be the first settlers there for their Incouragement. . . .

1. *Ib.* 979.

2. *Ib.* 981.

. . . "Whereas it is thought of great use to the British interest to have a settlement upon the nearest part of the Lake Er e near the falls of Iagara you are to endeavor to purchase in his Majesty's name of the Sinnekes or other native proprietors all such lands above the falls of Iagara fifty miles to the southward of the said falls, which they can dispose off."¹

In the answer of the Six Nations to Governor Burnet, under date of Sept. 17, 1724, they said:

"We say still that we are come out of Darkness into Light, Your kindness to us exceeds that of your predecessors, for you have been at the expence to mend & clear the carrying place & Wood Creek, and that you will order it further to be mended, for which we return our hearty thanks for now the old & decrepit may come over the carrying place whereas formerly it us [was] difficult to pass that way but now it will induce & encourage the Far Indians to come to trade here which will engage them to be firmly united to us. It is most certain that Trade is the cheifest motive to promote Friendship, therefore we repeat again that we return you our hearty thanks for this singular favor & kindness."²

These and other important official papers, bearing on the trade relations of the Province, preceded the memorial of Cadwallader Colden, already mentioned. They were followed by other official papers, in which the commercial advantages of the Province were set forth from the different points of view of the writers, actuated as they were by strong commercial instinct.

Cadwallader Colden in his official report to Lieutenant Governor Clarke in 1737-1738, thus describes the adaptability of the topography of the Province for commercial development:³

"In the Mohawks Country, the Level of the Land seems to be at the greatest height above the sea; for in that part of the country, at about 50 miles west northwest from Albany, & 12 miles west from the Mohawks River, some Branches of the largest Rivers in North America, & which run contrary courses, take their rise within 2 or 3 miles of each other, viz., 1st a Branch of Hudson's river, which falls into the sea near New York, after having run about 250 miles.

1. 5 Col. Hist. N. Y., 542, 642.

2. *Ib.* 717.

3. 4 Doc. Hist. N. Y., 112.

"Second, the Oneida River running northward falls into Oneida Lake, which empties itself into the Cadarackin Lake at Oswego; from this Lake the great River St. Lawrence takes its rise which, passing Montreal and Quebec, empties itself into the Ocean opposite to Newfoundland.

"Thirdly, a Branch of Susquehana River, which running South-erly passes through Pennsylvania & Maryland, and empties itself into Chesapeak Bay in Virginia.

"The Province of New York has, for the conveniency of Commerce, advantages by its scituation beyond any other Colony in North America For Hudson's River, running through the whole extent of the Province, affords the inhabitants an easy Transportation of all their Commodities, to & from the City of New York. From the Eastern Branch there is only land carriage of sixteen miles to the Wood Creek, or to Lake St. Sacrament, both of which fall into Lake Champlain, from whence Goods are transported by water to Quebec. But the chief advantages are from the western Branch of Hudson's River. At 50 miles from Albany the Land Carriage from the Mohawks river to a lake from whence the Northern Branch of Susquehana takes its rise, does not exceed 14 miles. Goods may be carried from this lake in Battoes or flatt bottomed Vessels, through Pennsylvania, to Maryland & Virginia, the current of the river running every where easy, without any cataract in all that large space. In going down this River two large branches of the same River are met, which come from the westward, & issue from the long ridge of mountains, which stretch along behind Pennsylvania, Maryland, Virginia & Carolina, commonly call'd the Apalachy Mountains. By either of these Branches Goods may be carried to the mountain & I am told that the passage through the Mountains to the Branches of the Misissipi which issue from the West side of these Mountains, is neither long nor difficult; by which means an Inland Navigation may be made to the Bay of Mexico.

"From the Head of the Mohawks River there is likewise a short land Carriage of four miles only, to a Creek of the Oneida lake, which empties itself into Cadarackui Lake at Oswego; and the Cadarackui Lake, being truly an Inland sea, of greater breadth than can be seen by the eye, communicates with Lake Erie, the Lake of the Hurons, Lake Michigan & the Upper lake, all of them Inland seas, By means of these Lakes, & the Rivers which fall into them, Commerce may be carried from New York, through a vast Tract of Land, more easily than from any other maratime Town in North America."

On February 17, 1738, Lieutenant-Governor Clarke in his report to the Lords of Trade, says:

"No Province is more happy in its situation for trade and navigation. This town (New York) is not above 21 miles from the sea, having a bold and safe channel to it for vessels even of a large size, and an excellent harbor before the town: Our inland navigation is inferior to none, for besides that to New Jersey and Connecticut, the Hudson river is navigable through the heart of the Province 150 miles from New York to Albany: From Albany to Schenectady is but 15 or 16 by land, and there you enter the Mohocks river, which is navigable for canoes and battows to the head of it, being about 120 or 130 miles; From thence there is a short land carriage of a few miles to the Wood Creek, which leads through the Oneidas Lake to Oswego, and the lakes and rivers even to the branches of Mississippi; It is from the Indians that inhabit near, and to the northward and westward of those lakes, that we have our beaver in exchange chiefly for goods of the manufacture of England."¹

In the Remonstrance of the General Assembly to Governor George Clinton, under date of October 9, 1747, among other things, appear references to such garrisons and forts as that at Saraghtoga and at Albany, and the garrison and trading house at Oswego, which were considered of such importance that they "should be supplied and preserved at all events from falling into the hands of the enemy."²

Mr. Clinton in his letter to the Lords of Trade under date of July 25, 1745, represents that "Forts and trading houses" were erected "along the Lake in the Senekes Country (contrary to the faith of Treaties)," which enabled the French to exert great influence over the Indians to the detriment of the English.³

On August 7, 1755, Lieutenant Governor De Lancey reports to Secretary Robinson that "Captain Bradstreet, who was sent in command at Oswego . . . having in three hours time passed the great carrying place between the Mohawks River and the Wood Creek, with his Company,

1. Clarke to the Lords of Trade: 6 Col. Hist. N. Y., 113.

2. 6 Col. Hist. N. Y., 619.

3. *Ib.* 645. The Morris map of 1749 in the British Museum shows several portages in New York, forming routes to the St. Lawrence.

provisions, Battoes and Baggage, which is less time than what the Traders generally take with a single Battoe when they hasten to the Mart at Oswego."¹ Proceeding further in the same report Lieutenant Governor De Lancey in relation to transportation by water says:

"The same Battoes which carry the train, provisions etc for the Army to Oswego, may carry them to Niagara, and being transported above the falls, the same may carry them to Presque Isle, the Fort on the South side of Lake Erie, so that it will be practicable to bring the expence of such an expedition into a moderate compass, far less, than the expence of Waggon, horses etc which are necessary in an expedition by Land from Virginia to the Ohio."²

IV. EARLIEST IMPROVEMENTS OF WATERWAYS.

There appeared on the topographical map of the country between the Mohawk river and Wood creek, from a survey taken in 1758, at the time General Abercrombie sent instructions to General Stanwix to build a fort at the Oneida carrying place, drawings of sections of the Mohawk and its tributaries and also of a section of Stoney creek, a part of Wood creek, with a sluice and dam in Stoney creek to raise a head of water to float batteaux to Fort Bull. It is stated in the notes that a sawmill with dam was built there on a branch or tributary of the Mohawk in 1758, at the time of the building of Fort Stanwix, and that there was a wood dam made by a prodigious number of trees thrown promiscuously by freshets across the Mohawk. The shortest distance in a straight line as represented on that map from the waters of the Mohawk to those of Stoney creek is 5,000 feet and the road over the carrying place was some longer, said to be 5,940 feet. It was also represented, if a ditch were cut between these two streams, loaded batteaux might pass without any portage, "besides by a sluice it might be made a dry or a navigable channel at pleasure."

1. 6 Col. Hist. N. Y., 990.

2. *Ib.* 991.

The sluice in Stoney creek, "by being shut 6 or 8 hours before the batteaux were to go to and from Fort Bull, gave sufficient water to float them."¹

When General Philip Schuyler was in England, in 1761, he observed what England was doing in the way of canal construction and upon his return to this country prevailed upon Governor Sir Henry Moore to look into the matter of rendering the Mohawk river navigable by the construction of such canals as might be necessary to overcome the rapids at Little Falls and elsewhere.²

In the French report of the topography of the country between Oswego and Albany made in 1757, is contained, in addition to many other things of interest commercially, the following description of Wood creek:

"From Lake Oneida we enter the River Vilcrick, which empties into that lake, and ascend nine leagues to Fort Bull. This river is full of sinuosities, narrow and sometimes embarrassed with trees fallen from both banks. Its navigation is difficult when the water is low. It is, however, passable at all times with an ordinary bateau load of 14 to 1,500 weight. When the waters of this stream are low, an ordinary bateau load cannot go by the river further than a league of Fort Bull. It becomes necessary then to unload and make a carrying place of the remainder by a road constructed to the Fort, or to send back the bateau for the other half load."³

Jonathan Carver, a captain in the Provincial troops during the French and Indian war, gives an account of a journey in 1766 from Boston to the western country, and in his description of the rivers and lakes says that "Oniada lake, situated near the head of the river Oswego, receives the waters of Wood creek, which takes its rise not far from the Mohawks river. These two lie so adjacent to each other that a junction is effected by sluices at Fort Stanwix," about twelve miles from the mouth of the former. This statement has

1. Col. Montresor to Capt. Green, July, 1758; 4 *Doc. Hist. N. Y.*, 326. A good description of the Oneida portage and its several forts, and a copy of a British Museum map of the Oneida portage, 1756, are given in Hulbert's "Portage Paths" (7 "Historic Highways of America"), 138-150.

2. Lossing's "Empire State," 347. Hosack's "Memoir of DeWitt Clinton," 289, note.

3. 10 *Col. Hist. N. Y.*, 675.

been frequently quoted by writers and men no less eminent than De Witt Clinton, but there seems to be little to substantiate the statement, that artificial water communication had been effected between Oneida lake and the Mohawk river by sluices prior to 1766, other than the word of Captain Carver. Had such water communication existed at that time, it is difficult to understand why Sir Henry Moore, Governor of the Province, who traversed that region in 1768, did not make mention of it, and especially so in view of his desire to establish water communication up the Mohawk past Little Falls to Fort Stanwix. The sluices constructed or proposed on the topographical map of 1758 were about one mile apart and did not then connect the waters of the Mohawk and Stoney or Wood creek.¹

In a letter from Major General Gage to the Earl of Shelburne, dated at New York, May 27, 1767, he says:

"In order to lessen expenses . . . I have it now under consideration to ease the Crown of the expense of supporting Fort Stanwix, which stands upon [the] carrying place between the Mohawk River and the Wood Creek; the last a small River whose Waters lead to Lake Ontario. . . . The use of Fort Stanwix was, that being situated upon a carry Place, the Garrison assisted in the Transportation of the Boats & Stores, but as the Stores formerly demanded are now greatly reduced, I am of opinion that the Service can be carried on in the manner proposed without being at the expense of supporting a Fort and maintaining a Garrison at so great a distance."²

No mention of water communication between the Mohawk and Wood creek was made in 1767 by General Gage, who proposed to discontinue Fort Stanwix.

In an official report to the Earl of Hillsborough, dated August 17, 1768, Governor Sir Henry Moore says in relation to his tour through the Province:

1. On the general unreliability of Carver, see "The Travels of Jonathan Carver," by Edward Gaylord Bourne, *American Historical Review*, Jan. 1906. The book is shown to be largely plagiarized from other travelers and may indeed have been written by Dr. John Coakley Lettsom, the ostensible editor of Carver's mss. Published in 1778, the reference to "sluices at Fort Stanwix" is probably based, not on what Carver found there in 1766, but on Moore's report of 1768, proposing the construction of sluices. This report, as well as that of Gov. Tryon in 1774, was no doubt familiar to the compiler of the "Travels" attributed to Carver.

2. 7 Col. Hist. N. Y., 985.

"I went up as far as the Canajoharies Falls [Little Falls] on the Mohawk river; here is a carrying place about a mile in length and all boats going down or up the river are obliged to unload and be carried overland, which is a great detriment not only on account of the delay it occasions, but from the damage done to the boats and cargo, which suffer greatly by the common method of proceeding with them. As this fall is the only obstruction to the navigation between Fort Stanwix and Schenectady, my intention was to project a canal on the side of the falls with sluices on the same plan as those built on the great canal in Languedoc, and I stayed a whole day there, which was employed in measuring the falls and examining the ground for that purpose. Upon the meeting of the Legislative bodies I propose to lay what I have done before them and engage them, if I possibly can, to carry into execution a project which will be attended with such benefit to the public. If I fail of success in my attempt, I shall still have this satisfaction, that I have done my duty in pointing out to them how those advantages they have from their situation may be improved, the rest must depend on themselves."¹

Accordingly in his message to the Colonial Assembly on December 16, 1768, Governor Moore stated that "the obstruction of navigation in the Mohawk river between Schenectady and Fort Stanwix, occasioned by the falls of Canajoharie, had been constantly complained of and that it was obvious to all who were conversant in matters of this kind that the difficulty could be easily removed by sluices by the plan of those in the great canal of Languedoc, France, which was made to open a communication between the Atlantic ocean and the Mediterranean." This is the earliest authentic proposal for the construction of artificial water communication to overcome the falls in the Mohawk between Schenectady and Fort Stanwix of which we have any record.

In the official report to Governor Tryon, under date of June 11, 1774, under certain heads of inquiry, among them is one relative to "What rivers are there, and of what extent and convenience in point of Commerce?" In answer thereto, he said:

"Hudsons River is the only navigable river in the Province, and affords a safe and easy passage for vessels of eighty tons burthen to

1. 8 Col. Hist. N. Y., 93.

the City of Albany, which is about 180 miles from the sea. It has already been mentioned that it extends nearly to the latitude of 45—but the navigation except for small vessels terminates at or near that city. To the northward of Albany, about ten miles, this river divides. The western branch which (above the great Cahoon falls) is called the Mohawk river, or the Mohawk branch of the Hudsons river, leads to Fort Stanwix, and a short cut across the carrying place there might be made into Wood creek, which runs into the Oneida lake, and thence through the Onondaga river into Lake Ontario.

"The other branch being the continuation of the main river tends to Fort Edward, to the north of which it seems practicable to open a passage by locks, &c., to the waters of Lake Champlain which communicate with the river St. Lawrence, passing over the falls at St. Johns.

"Both branches are interrupted by falls and rifts; to surmount these obstructions, an expence would be required too heavy for the Province at present to support, but when effected would open a most extensive inland navigation, equal, perhaps, to any as yet known."¹

In 1776, General Philip Schuyler proposed a water-way between the Hudson and Lake Champlain and was authorized to "take measures for clearing Wood creek at Skeensboro, constructing there and taking the level of the waters falling into the Hudson at Fort Edward and into Wood creek."² Charles Carroll of Maryland states that while being entertained by General Schuyler at Albany in March, 1776, General Schuyler informed him that "an uninterrupted water carriage between New York and Quebec might be made at fifty thousand sterling expense."

In 1777 Gouverneur Morris in a conversation with Morgan Lewis and General Philip Schuyler at Fort Edward said: "At a no very distant day the waters of the great western seas will by the aid of man break through the barriers and mingle with those of the Hudson. Numerous streams pass these barriers through natural channels and artificial ones may be conducted by the same routes."³

1. *Ib.* 442.

2. This stream, running into Lake Champlain, should not be confused with the Wood creek running into Oneida lake.

3. Lossing's "Life and Times of Philip Schuyler," II, 40, 44.

In 1783, in a letter, General Washington wrote to the Marquis de Chastellux as follows:

"I have lately made a tour through the Lakes George and Champlain, as far as Crown Point; thence returning to Schenectady, I proceeded up the Mohawk river to Fort Schuyler (formerly Fort Stanwix), and crossed over to Wood creek, which empties into the Oneida lake, and affords the water communication with Ontario. I then traversed the country to the head of the eastern branch of the Susquehanna and viewed the lake Otsego and the portage between that lake and the Mohawk river at Canajoharie. Prompted by these actual observations, I could not help taking a more extensive view of the vast inland navigation of these United States, from maps and the information of others; and could not but be struck with the immense extent and importance of it, and with the goodness of that Providence which has dealt its favors to us with so profuse a hand. Would to God we may have wisdom enough to improve them. I shall not rest contented, till I have explored the western country and traversed those lines, or great part of them, which have given bounds to a new empire."

In 1784, Christopher Colles, an Irish engineer, who had located in New York City and proposed to build a reservoir for the storing of water for the use of that municipality, presented a memorial to the Legislature on the subject of improving navigation of the Mohawk river, which was reported upon by the Assembly committee on November 6th, as follows:

"That it is the opinion of the Committee that the laudable proposal of Mr. Colles for removing the obstructions of the Mohawk river so that boats of burthen may pass the same, merits encouragement; but that it would be inexpedient for the Legislature to cause that business to be undertaken at the public expense; that as the performance of such work would be very expensive, it is, therefore, the opinion of the Committee that Mr. Colles with a number of adventurers (as by him proposed) should undertake it and that they ought to be encouraged by a law giving and securing unto them, their heirs and assigns forever, the profits that may arise by the transportation, under such restrictions and regulations as shall appear to the Legislature necessary for that purpose, and authorizing them to execute that work through any lands or improvements on payment of the damages to the proprietors as the same shall be assessed by a jury."

1. Washington to Chastellux, Oct. 12, 1783.

That report was concurred in by the Assembly.

The following year, Mr. Colles again applied to the Legislature and an item of \$125 was inserted in the Supply Bill "for the purpose of enabling him (Colles) to make an essay toward the removing of certain obstructions in the Mohawk river and to exhibit a plan thereof at their next meeting."

Accordingly Mr. Colles made a survey of some of the impediments of the Mohawk river as far as Wood creek and set forth in detail the results of his investigation in a pamphlet entitled "Proposal for the speedy settlement of the waste and unappropriated lands on the western frontier of Western New York and for the improvement of inland navigation between Albany and Oswego." In this report he recommended the organization of a company with a capital stock of £13,000, and that there be ceded to the company a grant of 250,000 acres of western lands on the completion of the inland navigation of the Cahoes, the Little Falls, and Fort Schuyler. He estimated the expense of a canal $4\frac{1}{2}$ miles in length, with 20 locks, at Cahoes, at £6,000; a canal at Little Falls, one mile in length with six locks, he estimated at £3,000; a canal at Ft. Schuyler (Rome), $1\frac{1}{4}$ miles in length, he estimated at £2,000. Improvement of the channel of the river, he estimated at £2,000.

After making the foregoing estimates, Mr. Colles continues in his report as follows:

"From the foregoing calculations, the importance of the proposed design will appear sufficiently evident. By this, the internal trade will be increased—by this also, the foreign trade will be promoted—by this, the country will be settled—by this, the frontiers will be secured—by this, a variety of articles, as masts, yards, and ship timber may be brought to New York, which will not bear the expense of land carriage, and which, notwithstanding, will be a considerable remittance to Europe. By this, in time of war, provisions and military stores may be moved with facility in sufficient quantity to answer any emergency; and by this, in time of peace, all the necessities, conveniences, and if we please, the luxuries of life, may be distributed to the remotest parts of the great lakes, which so beautifully diversify the face of this extensive continent, and to the smallest

branches of the numerous rivers which shoot from these lakes upon every point of the compass.

"Providence, indeed, appears to favour this design; for the Alleghany mountains, which pass through all the states, seem to die away as they approach the Mohawk river; and the ground, between the upper part of this river and Wood creek, is perfectly level, as if designedly to permit us to pass through this channel into this extensive inland country.

"The amazing extent of the five great lakes, to which the proposed navigation will communicate, will be found to have five times as much coast as all England; and the country watered by the numerous rivers, which fall into these lakes, full seven or eight times as great as that valuable island. If the fertility of the soil be the object of our attention, we will find it at an average equal to Britain. Of late years, the policy of that island has been to promote inland navigation; and the advantages, gained both by the public and individuals, have been attended with such happy consequences, that it is intersected in all manner of directions by these valuable water-ways, by which the inhabitants receive reciprocally the comforts of the respective productions, whether flowing from the bounty of Providence, or the effects of industry; and by an exchange of commodities, render partial and particular improvements the source of universal abundance."¹

This was an early and a thrilling prophecy of New York's commercial development, which will be more fully realized when the Mohawk river and Wood creek are improved and become the highway for the vast commerce that will be borne upon their waters at the completion of the barge canals, 125 years after such prophecy was made. His words have been oft repeated and they have been an inspiration to many as they have realized their full significance and contemplated the advantages that would accrue from connecting the great lakes on the west with tidewater on the east.

At the legislative session of 1786, the committee reported favorably upon the renewed application of Mr. Colles, and permission was given him to bring in a bill to compensate him for the purposes specified. Owing to the want of subscribers to the capital stock of his proposed corporation Christopher Colles appears to have lost interest in the pro-

1. "The Canal Policy of the State of New York," by Tacitus, 12, 13.

ject and did not pursue the matter further. He was a prophet and now, more than a century afterward, his vision is assuming substantial form.

Mr. Colles again appealed to the Legislature, and the Committee having the matter in charge made a favorable report upon his application. The petition of Christopher Colles was referred to Mr. Jeffery Smith, who, on March 17, 1786, reported in favor of "An Act for improving the navigation of the Mohawk river, Wood creek, and the Onondaga river with a view of opening an inland navigation to Oswego, and for extending the same, if practicable, to Lake Erie." But the Legislature adjourned without taking final action on the proposition.

Mr. Colles was one of the first to call attention to the gap in the Appalachian mountain chain.

In 1786, Goldsbro' Banyar, General Philip Schuyler and Elkanah Watson were appointed commissioners "to examine and report on making a canal from Wood creek to the Mohawk river and generally as to the most judicious plan of making the river navigable."¹

As early as 1787 Joel Barlow in his "Vision of Columbus" prophesied that:

"From fair Albania, toward the setting sun,
Back through the midland length'ning channels run;
And the fair lakes, their beauteous towns that lave,
And Hudson's joined to fair Ohio's wave."

In 1788, Elkanah Watson visited Fort Stanwix. He says in his Journal:

"In contemplating the situation of Fort Stanwix, at the head of batteaux navigation on the Mohawk river, within one mile of Wood creek, running west, I am led to think this situation will, in time, become the emporium of commerce between Albany and the vast western world above.

"Wood creek is, indeed, small, but it is the only water communication with the great lakes. It empties into the Oneida lake; thence down the Onondaga and Oswego rivers to Lake Ontario, at Fort Oswego, where the British have a garrison.

1. 8 Col. Hist. N. Y., 189, note.

"Should the Little Falls be ever locked, the obstructions in the Mohawk river removed, and a canal between said river and Wood creek, at this place formed, so as to unite the waters running east, with those running west;—and other canals made, and obstructions removed to fort Oswego,—who can reasonably doubt but that by such bold operations, the State of New York have it within their power, by a grand stroke of policy, to divert the future trade of lake Ontario, and the great lakes above, from Alexandria and Quebec, to Albany and New York."¹

Nothing is said by Watson about existing water communication effected by sluices. In September, 1791, he visited Fort Stanwix again, and in his Journal he says: "We transported our boats, and baggage, across the carrying-place, a distance of two miles, over a dead flat,—and launched them into Wood creek, *running west*,—huzza! It is a mere brook at this place, which a man can easily jump across."

The mill dam and sluices in Wood creek did not then establish water communication between that creek and the Mohawk river. It is improbable that the forces at Fort Stanwix, under the command of Col. William Bradstreet in 1758, or those under General Prideaux and General Sir William Johnson in 1759, all of whom were compelled to pass from the Mohawk through Wood creek and Oneida lake to reach Oswego and Lake Ontario, constructed the sluices referred to by Captain Carver for military purposes, notwithstanding that was the established route for transporting troops and supplies as well as for general travel between the Mohawk river and Lake Ontario, as neither Sir Henry Moore, nor Elkanah Watson, both of whom were particularly interested in that subject, made it a matter of record.

Had artificial water communication between the Mohawk and Wood creek existed in 1766, as stated by Carver, it would have been an event of such importance as to occasion comment by all who traveled that way thereafter. However, none of those who passed from the Mohawk to Wood creek before or after 1766 make mention of any such water

1. Watson's "History of the . . . Western Canals," 15, 16.

communication effected by sloop and some speak of Fort Stanwix as the western terminus of canal navigation until the Western Inland Lock Navigation Company completed its canal in 1797.

On March 17, 1786, Mr. Jeffrey Smith, of Suffolk County, introduced a bill, entitled "An act for improving navigation of the Mohawk river, Wood creek and Onondaga river, with a view of opening an inland navigation to Oswego and for extending the same, if practicable, to Lake Erie."

This was undoubtedly predicated upon the petition from Christopher Colles, with a report of the practicability of rendering the Mohawk river navigable, which was presented to the Assembly and referred to the committee, of which Mr. Jeffrey Smith was chairman.

On March 25, 1786, the committee of the whole, through its chairman, Mr. N. Smith, reported that it had made some progress in the consideration thereof and was granted leave to sit again. The same action was taken on the report of a committee on March 29th, April 4th and April 5th, 1786, but the session adjourned without taking further action in relation to the matter.

It would be exceedingly interesting to peruse the debates on that occasion had they been preserved by an adequate system of stenographic reporting, but, unfortunately, they were not preserved and we are left largely to conjecture as to what was said by the prominent men in the Assembly at that time upon the report of Christopher Colles then under consideration.

The debate, however, undoubtedly centered public attention upon the feasibility of a waterway through the State which would afford a far better means of communication than theretofore existed. Furthermore, it was a step leading up to important legislation which soon followed.

In 1791 Governor George Clinton in his address to the Legislature, among other things, said in relation to internal improvements that "Our frontier settlements, freed from apprehension of danger, are rapidly increasing, and must soon yield extensive resources for profitable commerce;

this consideration forcibly recommends the policy of continuing to facilitate the means of communication with them, as well to strengthen the bands of society as to prevent the produce of those fertile districts from being diverted to other markets."

V. FURTHER EVOLUTION—THE INLAND LOCK NAVIGATION COMPANIES.

The next step in the evolution of internal improvements was taken in the Senate by Elisha Williams in 1791, when he introduced a resolution "to appoint a joint committee to examine what new roads are necessary to be opened in this State, and what obstructions in the Hudson and Mohawk rivers will be proper to be removed, and to report thereon, with their opinion of the most eligible mode for effecting the same, and defraying the expense thereof," which was favorably acted upon by both Houses in a report made to the Assembly by Col. James Livingston, of Montgomery County, recorded as follows:

"Mr. Livingston, from the committee of this House, consisting of a member from each county in the State, appointed on a joint committee, with a committee of the honorable the Senate, to examine and report relative to roads and inland navigation, reported, that it is the opinion of the committee that the commissioners of the land office be authorized to make and offer proposals to such person or association of persons as will contract to open a water communication between the Mohawk river and Wood creek; and such person or persons as will remove impediments to the navigation of boats between Rensselaerwyck and Fort Edward; and such person or persons as will open a water communication between Fort Edward and Lake Champlain; with power to grant such person or persons an exclusive right to the profits of a reasonable toll on the canals when so opened for a limited term of years—and further, that it is the opinion of the committee, that the rivers Delaware and Susquehannah, with their navigable branches, ought to be made public highways; and that provision by law ought to be made for removing and preventing any obstructions that now are, or hereafter shall be made in the free navigation thereof. And that the committee are further of opinion, that the commissioners of the land office be requested to

report to this House what new roads are proper to be laid out at this time, and whether any and what legislative provision is necessary for that purpose."

Such report was committed to a committee of the whole House, whereupon the following proceedings were had on Monday, February 23, 1791:

"Mr. Livingston, pursuant to notice by him given for that purpose yesterday, moved for leave to bring in a bill entitled An Act for opening communications between Wood creek and Mohawk river, and between Lake Champlain and Hudson river, and for removing certain obstructions in the Hudson and Mohawk rivers.

"Ordered, That leave be given accordingly.

"Mr. Livingston, according to leave, brought in the said bill, which was read the first time, and ordered a second reading.

"Mr. Barker, from the committee of the whole House on the report of the committee relative to roads and inland navigation, as entered on the journals of this House of the 26th instant, reported, that the committee agreed to certain resolutions, which he was directed to report to the House; and he read the report in his place, and delivered a copy of the said resolutions in at the table, where the same were again read, and agreed to by the House. Thereupon,

"*Resolved*, That that part of the same report which contains the opinion of the committee, that the commissioners of the land office be authorized to make and offer proposals to such person or association of persons as will contract to open a water communication between the Mohawk river and Wood creek, and such person or persons as will remove impediments to the navigation of boats between Rensselaerwyck and Fort Edward, and such person or persons as will open a water communication between the river Hudson and lake Champlain, with power to grant such persons an exclusive right to the profits of a reasonable toll on the canals so opened for a limited term of years, be committed to a committee of the whole house on the bill last mentioned.

"*Resolved*, That that part of the same report which contains the opinion of the committee, that the rivers Delaware and Susquehanna, with their navigable branches, ought to be made public highways, and provision by law be made for removing and preventing any obstructions that now are, or hereafter shall be made in the free navigation therein, be committed to a committee of the whole house, on the bill entitled An Act to prevent the obstructions of the navigation in the rivers Delaware and Susquehanna.

"Resolved, If the honorable Senate concur therein, that the commissioners of the land office be requested to report to the Legislature as soon as conveniently may be, what new roads are necessary to be opened within this State, and what legislative provision may be necessary for that purpose."

In conformity thereto, on March 24, 1791, an act was passed entitled "An Act concerning roads and inland navigation," which contained the following provision:

"And be it further enacted, that the commissioners of the land office be and they are hereby authorized to cause to be explored, and the necessary survey made of the ground situate between the Mohawk river at or near Fort Stanwix, and the Wood creek in the county of Washington, and to cause an estimate to be made of the probable expense that will attend the making canals sufficient for loaded boats."

The sum of \$250 was appropriated to defray the expenses of the commission. The necessary surveys were made, and the junction canal between the Mohawk river and the Wood creek was laid out by Major Abraham Hardenburgh, an experienced and skillful surveyor, assisted by Benjamin Wright, in June or September, 1791, along the route afterwards followed by the Western Inland Lock Navigation Company, substantially in the direction of the new barge canal now being constructed between Mohawk river and Wood creek. The expense of the Hardenburgh survey under the commissioners of the land office was \$149.70, and their report was submitted to the Legislature by Governor George Clinton on January 5, 1792, in his speech made on that occasion, in which he said:

"The Legislature at their last meeting, impressed with the importance, not only to the agriculture and commerce of the State, but even to the influence of the laws, of improving the means of communication, directed the commissioners of the land office to cause the ground between the Mohawk river and the Wood creek in the county of Washington, to be explored and surveyed, and estimates to be formed of the expense of joining those waters by canals. I now submit to you their report, which ascertains the practicability of effecting this object at a very moderate expense; and I trust that a measure so interesting to the community will continue to command the attention due to its importance, and especially as the resources

of the State will prove adequate to these and other useful improvements, without the aid of taxes."

In September, 1791, Elkanah Watson in company with General Van Courtland, Stephen Bayard and Jeremiah Van Rensselaer made a journey from the Hudson river to Seneca lake and kept a journal of his travels. In speaking of the salt manufacture at Onondaga he says:

"These works are in a rude, unfinished state,—but are capable of making about eight thousand bushels of salt per annum; which is nearly the quantity required for the present consumption of the country. . . . Providence has happily placed this great source of comfort, and wealth, precisely in a position accessible by water in every direction.

"When the mighty canals shall be formed, and locks erected, it will add vastly to the facility of an extended diffusion, and the increase of its intrinsic worth. It will enter Ontario and the other great lakes, and find its way down the St. Lawrence, by Oswego; into Pennsylvania, and the Chesapeake, up Seneca river, to the head of the Seneca lake, and by a portage (perhaps eventually a canal) of eighteen miles, to Newtown, on the Susquehanna river: and through the canals in contemplation, up Wood creek, and down the Mohawk river, into the Hudson."¹

After his return from Seneca Falls, Elkanah Watson made a report, based upon his journal and what he had observed of a route for intersecting canals between the Mohawk river and Seneca lake, setting forth the probable expense thereof and concluding with the following statement:

"To investigate or attempt to point out the advantages which would result to the Union, to the State, or to individuals, from this navigation being laid completely open, would require a folio volume. It may at once be safely presumed that it would accommodate boat navigation for at least 1,000 miles of shore (taking Mohawk river with its various branches, and the other rivers and lakes) within the boundaries of this State, exclusive of all the great lakes of Canada. The man or men who are instrumental in bringing those improvements forward, will, in fact, be instrumental in creating many thousand citizens for America, in process of time, by advancing accommodations and subsistence for thousands. It is a matter of great

1. *Ib.* 42, 43.

doubt, in respect to the acquisition of produce to the State, in opening the navigation to Lake Champlain, or to the western country, which of these objects deserves most of our attention. As it respects commerce and new sources, I cannot determine; but considered in another point of view, the preference is indisputably in favor of opening the western communication first. I mean the rivalry subsisting between this State and Pennsylvania, and the efforts the latter State is now making to divert the western country of Philadelphia, which, in a state of nature, is by far the richest part of this State."

On January 3, 1792, the commissioners of the Land Office reported that in their opinion water communication could be established between Albany and Seneca lake by means of locks and canals, utilizing the natural streams of water, for the sum of \$200,000. This report was transmitted to the Legislature by Governor Clinton, in which he said: "I trust that a measure so interesting to the community will continue to command the attention due to its importance and especially as the resources of the State will prove adequate to this and other useful improvements, without the aid of taxation." The report and accompanying message were referred to a joint committee of both Houses, and on February 7th Senator Williams introduced a bill entitled: "An Act for constructing and opening a canal and lock navigation in the northern and western part of the State." Gen. Philip Schuyler and Elkanah Watson were among its warmest advocates.

It was not originally contemplated by some of the advocates of water communication to do more than effect water communication between the Mohawk and Oneida lake, but Elkanah Watson wrote to General Schuyler that "to stop at that point (Fort Stanwix), will be half doing the business." . . . "The charter should stretch to the Seneca lake and to the harbor of Oswego as suggested in my journals," . . . "so as to admit the commerce of the Great Lakes into the Hudson river."¹ In reply thereto, under date of March 4, 1792, General Philip Schuyler says:

1. "History of the Canal System of the State of New York," by Noble E. Whitford (Supplement Report N. Y. State Engineer, 1905), 32, 33.

"A joint committee of both Houses (of which committee I was not one) had been formed: This reported a bill for incorporating two companies, one for the western, and another for the northern navigation. The former was to have carried *no farther than the Oneida lake*. The bill contemplated a commencement of the works from the navigable waters of the Hudson, and to be thence continued to the point I have mentioned, and it obliged the corporation, in a given number of years (which was intended to be ten) to the completion of the whole western navigation. When this bill was introduced in the Senate, the plan generally appeared to me so exceptionable, that I thought it incumbent on me to state my ideas on the subject at large. They were approved of unanimously by the committee of the whole house, and I was requested to draught a new bill. This was done, and it has met with the approbation of the committee of the whole."¹

Among the letters published at the time in the *New York State Journal and Patriotic Register*, and presumably written by Elkanah Watson in advocacy of establishing water communication between the Great Lakes and the Hudson river, one states:

"It appears that every natural advantage is in favor of New York: provided only attention is paid to promote the improvements necessary; and it merits a serious consideration, that although nature has favored this quarter, yet, through inattention, the channel of commerce may receive an early bias to a different point: and commerce is of such a nature, that when once established in any direction, it is generally found difficult to divert it."

This report by Elkanah Watson evidently made a deep impression upon the mind of General Schuyler. It was followed by a letter from Elkanah Watson to General Philip Schuyler in February, 1792, in which he says:

"I have been attentive to the progress of the great object of the Western canals since the commencement of the session of the Legislature.

"I observe, with great regret, that no one of that body (not even the Governor) appears to soar beyond Fort Stanwix except yourself. To stop at that point will be half doing the business. Although we may not be able to accomplish the whole plan for years to come, yet the improvements on Wood creek are indispensable to make the con-

1. *Ib.* 33.

templated canal at Fort Stanwix of any value, the charter should stretch to the Seneca lake, and to the harbor of Oswego, as suggested in my journals, which you have perused; and in conformity to our conversations, so as to admit the commerce of the great lakes into the Hudson river, and vice versa. . . .

"I am well aware the whole extent of this great enterprise cannot be accomplished, perhaps, in this generation; but rest assured, Sir, if the charter or act of incorporation can be so shaped, as to embrace the whole extent of the objects we contemplate, and a period of sufficient extent, say twenty years, is allowed for their completion, the plan would be held up constantly to the view of a new generation, which will rise in the west like magic. And this very enterprise will be one means of producing that effect in a certain degree, as I have no doubt the canals will keep pace with the progress of population. In other words, if a fair experiment is made, and it shall be found useful to the community and encouraging to the adventurers, (for I fear the State will not dare to embark, although a state object) we can have no reasonable apprehension but it will succeed. I have conversed very fully with James Watson, and my uncle, Judge Hobart, on this great enterprise: they appear deeply impressed with the importance of our views, although they appear to want faith. They think we are too sanguine, and half a century too soon in the project. I think not: and I am so well convinced to the contrary, that I am determined to do my utmost to co-operate with your enlarged views on this very important subject; and I will, if you deem it necessary, proceed to New York again, to afford you every aid in my power, I am, Sir,

"E. WATSON."

Replying to Elkanah Watson, in a letter dated New York, March 4, 1792, General Schuyler wrote:

"Sir—The letter which I had the pleasure to receive from you would have been acknowledged at a more early day: sickness was one cause which prevented; and another, proceeded from a wish to be able to communicate something decisive on the subject of your letter.

"A joint committee of both Houses (of which committee I was not one) had been formed: this reported a bill for incorporating two companies, one for the western, and another of the northern navigation. The former was to have been carried *no farther than the Oneida lake*. The bill contemplated a commencement of the works from the navigable waters of the Hudson, and to be thence con-

tinued to the point I have mentioned, and it obliged the corporation, in a given number of years (which was intended to be ten) to the completion of the whole western navigation. When this bill was introduced into the Senate, the plan generally appeared to me so exceptionable, that I thought it incumbent on me to state my ideas on the subject at large. They were approved of unanimously by the committee of the whole house, and I was requested to draught a new bill. This was done, and it has met with the approbation of the committee of the whole, and will be completed tomorrow by filling up the blanks. By this bill two companies are to be incorporated, one for the western, and the other for the northern navigation. It is proposed that each shall be opened by commissioners at New York and Albany; that the books shall be kept open a month; that if more than one thousand shares are subscribed, the access [excess] shall be deducted from each subscription *pro rata*, so, nevertheless, as that no subscriber shall have less than one share, that every subscriber shall pay at the time of subscription, say thirty dollars; and that the directors of the incorporation shall, from time to time, as occasion may require, call on the subscribers for additional monies to prosecute the work to effect: whence the whole sum for each share is left indefinite.

"The western company are to begin their works at Schenectady, and to proceed to Wood creek. If this part is not completed in — years, say six or eight, then the corporation is to cease; but having completed this in — years more, say ten, they are to be allowed for extending the works to the Seneca lake and to Lake Ontario. And if not completed within that term, then the incorporation to cease so far forth only as relates to the western navigation from Wood creek to the two lakes. The State is to make an immediate donation of money, which I proposed at ten thousand pounds for each company, but which I fear will be reduced to five thousand pounds for each company. I thought it best that the operations should begin at Schenectady, lest the very heavy expense of a canal either directly from Albany to Schenectady, or by the way of the Cohoos or Half-moon, might have retarded, if not have totally arrested, at least for a long time, the navigation into the western country: and conceiving that, if the navigation from Schenectady to the Cohoos was completed, the continuation of it from Schenectady to the Hudson would eventually and certainly take place. A given toll per ton will be permitted for the whole extent from the Hudson to the lakes, and this toll will be divided by the directors to every part of the canals and navigation in proportion to the distances which any boat may use the navigation. Provision is made, that if the toll does not pro-

duce, in a given time, six per cent., the directors may increase it until it does; but the corporation is ultimately confined to a dividend of fifteen per cent. Both corporations are in perpetuity, provided the works are completed in the times above mentioned.

"The size of the boats which the canals are to carry is not yet determined. I believe it will be, that they shall draw, when loaded, two and a half feet of water. This is substantially the bill, as far as it relates to the western navigation.

"The northern company is to commence its work at Troy, and to deepen the channels at Lansingburgh, so as to carry vessels of greater burthen to that place than are now capable of going there. The blank for this purpose I think will be filled up with two feet; that is, the channel is to be deepened two feet. From Lansingburgh the navigation is to be improved by deepening the river by locks and canals to Fort Edward, or some point near it, and thence to be carried to Wood creek, or some of its branches, and extended to Lake Champlain. Tolls, &c., are to be on the same principles as in the western navigation. A clause was proposed for preventing any canals to the Susquehannah, but it was lost: it being conceived improper to oblige the inhabitants of the western country to make Hudsons river, or the commercial towns on it, the only markets.

"In the prosecution of these capital objects, I have to combine the interests of the community at large with those of my more immediate constituents. What the result will be, time must determine. I shall, however, be happy if my ideas on the subject shall meet the approbation of gentlemen more conversant with those matters than I can be supposed to be.

"Excuse the many incorrections of this scrawl: I have not time to make a fair copy. And be so good as to communicate the contents to such gentlemen as feel an interest in the completion of those great objects which are the subject of it.

"I am, Sir, with regard, your obedient servant,

"PHILIP SCHUYLER

"E. WATSON, Esq."

Undoubtedly, General Philip Schuyler, who had served as a member of the joint commission, appointed on February 15, 1791, composed of both Senate and Assembly, to inquire how the obstructions to navigation in the Hudson and Mohawk rivers might be overcome or remedied by the construction of artificial waterways, seconding their natural advantages, of which commission he was chairman, acquired

valuable information as to the topography of the country and the desirability of opening up navigation between Wood creek and the Mohawk river and between Lake Champlain and the Hudson river; and this information, together with that laid before him in the report of Elkanah Watson, furnished the basis for his remarks on the occasion of the introduction of the bill by General Williams, entitled "An Act for constructing and opening a canal and lock navigation in the northern and western parts of this State," in which speech he appears to have convinced the Senate that the plan as presented by General Williams, ought to be modified in certain respects, and General Schuyler was requested to embody his views in a bill, which he did, and the same was entitled "An Act for establishing and opening lock navigations in this State."

General Philip Schuyler was a descendant of the Dutch of Holland. They were familiar with the canals of that country, which had been in operation several hundred years, and it might have been expected that so distinguished a citizen of New York, familiar as he was from his travels abroad, with canal construction in Europe, would take a deep interest in establishing water communication through the interior of this State. He became the chief advocate on the floor of the Senate of the act which bears his name, and which resulted in the incorporation of the Western Inland Lock Navigation Company and the Northern Inland Navigation Company, in 1792. They were the earliest canal laws passed by the State of New York, and are interesting in the history of New York's canal system as an evidence of the interest taken at that early day by some of her foremost citizens in a policy destined to make New York the chief commercial State of the Union.

The bill was put into its final form by General Schuyler, passed the Legislature on March 24th and the Council of Revision on March 30, 1792, and became Chapter 40 of the Laws of 1792, entitled "An Act for establishing and opening lock navigation within the State."

Two corporations were formed, one for the purpose of opening a lock navigation from the navigable part of the

Hudson river to Lake Ontario and Seneca lake, to be known by the name of "The president, directors and company of the Western inland lock navigation in the State of New York"; the other for opening navigation from the navigable portion of the Hudson river to Lake Champlain, and to be known by the name of "The president, directors and company of the Northern inland lock navigation in the State of New York," each with a capital stock of one thousand shares and with boards of commissioners authorized to open books for subscriptions to the capital stock.

General Schuyler headed the list of the boards of directors of both of these companies. These corporations were authorized to exercise the power of condemnation, to impose tolls upon the traffic not exceeding "the sum of \$25 for every ton of the burden of such boat or vessel" passing between the Hudson river and Seneca lake and Lake Ontario, and between the Hudson river and Lake Champlain.

The Western company was required to complete its work from Schenectady to Wood creek in five years, and the boats navigating the locks were to draw two feet of water, and their length not to exceed forty feet, their width not to exceed twenty feet. In the event these water communications were not made within fifteen years, then all rights of the company were to cease and their corporate property revert to the people of the State.

Such act further provided that the State would appropriate to the said corporations a subsidy of \$12,500 when they had each expended the sum of \$25,000, which subsidy was to be expended in the further development of the undertaking.

During the second session of the Legislature in the year 1792, another Act was passed, known as Chapter 8, amending the original Act incorporating the companies in several material respects. Among other things it provided that the locks should not be less than ten feet in width nor less than seventy feet in length, and the water in the locks should be of sufficient depth to allow vessels drawing two feet of water to pass through them.

In 1792, General Philip Schuyler, Goldsbrow Banyar and Elkanah Watson made their report on the western waters of the State of New York, wherein they described their journey from Schenectady to Wood creek, giving distances, depth of water, condition of the channel on the Mohawk river, and other important data in relation to the natural watercourses between the Hudson and Oneida lake. They also describe the portage from the Mohawk to Wood creek, which they say is "81 chains through level grounds and swamps, the Mohawk about two feet higher than Wood creek." Proceeding they say further:

"Mr. Schuyler descended Wood Creek in a batteau. He found obstructions occasioned by timber, or rapids from the landing at the place where Fort Newport formerly stood, to that where Fort Bull was erected, quite trifling; but the Creek was so shallow that the batteau could not have passed without the aid of water previously collected in Mr. Lynch's dam. From Fort Bull to where Canada Creek enters Wood Creek, the rapids are many and sharp, with little water, the obstructions from timber trifling. From Canada Creek he walked about half a mile down and found a sufficiency of water; from thence to the Oneida Lake he was informed the navigation was greatly impeded by timber in the creek, as well as by many short turns."²⁴

General Philip Schuyler was chosen president of the Western Inland Lock Navigation Company and Messrs. Thomas Eddy, Jeremiah Van Rensselaer, Barent Bleeker, Elkanah Watson and Robert Brown were among its most influential members.

In the first report of the directors bearing the signature of Philip Schuyler as president, made to the Legislature of the State of New York in 1795, they say:

"In the summer and fall, ensuing the incorporation of the subscribers to the said companies, surveys were made on the Western route, from Schenectady to Wood Creek, and on the Northern route, from the head of the tide water of Hudson's river to Fort Edward; thence to the Northern Wood Creek, and down the same, to its junction with Lake Champlain. . . . The work was accordingly

1. 3 Doc. Hist. N. Y., 663.

commenced in April, 1793, . . . but its progress was arrested early in September, for want of funds. . . . In January, 1794, the work was, however, recommenced, although feebly, and some progress made, in hopes that the Legislature would afford aid, by grants, or loans of money, or by taking the unsubscribed shares. Accordingly, the Legislature, sensible of the propriety of relieving the stockholders . . . directed a subscription on the part of the people of the State, of two hundred shares to each company; this measure was attended with the most salutary effects. . . . It was the 17th of November before the canal and locks were so far completed as to afford a passage to boats. . . . Each boat was navigated by three men, and a voyage from Fort Schuyler to Schenectady, a distance of 112 miles, and back to the former place, was made at a mean in nine days. Thus transportation of a ton of produce, if no back freight offered, was equivalent to one man's wages for 18 days; the canal and locks can pass boats of 32 tons burthen and upwards, but impediments in the river, still to be removed, between Schenectady and the falls, and between the latter place and Fort Schuyler, prevent the use of boats of more burthen than ten or eleven tons. Each of these is navigated by five men and make the same voyage in fourteen days which, if no back freight offers, is at the rate of seven days' wages of one man for one ton; but until improvements shall be made in the river below and above the falls, these boats, when the water in the river is in its lowest state, which is usually from the middle of July to the close of September, can only convey about five or six tons in that period, then the transportation of a ton between the places aforesaid, is equal to the wages of one man for fourteen days, affording still an important saving. The whole time taken to pass the canal and locks does not exceed three quarters of an hour; the same burthen transported as heretofore by land, caused a detention at the very least, of an entire day and often more; . . . when a canal of little more than a mile and a half in length, through grounds unincumbered with rocks and chiefly cultivated, shall connect the waters of the Mohawk river with those of Wood creek, and when that creek shall be improved and some trifling obstructions removed in some few places, in the Onondaga and Seneca rivers, for then boats of ten tons burthen and more, may with facility be navigated to the most remote end of the Cayuga lake. . . . The directors have already determined to form the canal, between Mohawk river and Wood creek, at Fort Schuyler. . . . In the summer of 1793 the directors caused Wood creek to be cleared of the timber which had fallen into it in such quantity as almost altogether obstructed the navigation.

"In the year 1793, the northern company commenced a canal in the vicinity of Still Water, intending to extend it to Waterford. . . . A contract was made in that year for constructing a canal and locks, to open the navigation of the northern Wood creek, with Lake Champlain, obstructed by the falls at Skeensborough. The excavation of the canal through solid rock is nearly completed, and the locks will be constructed and finished in the present year [1795?]. . . . In 1794 the northern Wood creek was partially cleared of the timber which had fallen into it, and boats capable of passing from the falls of Skeensborough, to near Fort Ann; and as the road between these two places is exceedingly bad and deep, very considerable advantage has resulted from the operation" [of such transportation by water].

A few boats passed through the locks at Little Falls on the Mohawk in the fall of 1795. In December, 1795, Mr. William Weston, engineer, made an official report to the directors of the Western and Northern Inland Lock Navigation companies, in which he gives in detail an account of the work done prior thereto by such companies and the work remaining to be done, in order to further improve the navigability of the Mohawk and other intercepting waters, between the Hudson on the east and Ontario and Seneca lakes on the west. With this report he also submitted a detailed estimate of the expenses of the improvements recommended by him.

General Philip Schuyler had visited England in 1761 and there saw the canal extending from the coal mines of Worsley to Manchester with its aqueduct over the Irwell, by means of which vessels were transported forty feet above that stream. He learned that this (Duke's) canal reduced the price of transportation one-half and he believed that a canal between Lake Champlain and the Hudson river would prove a commercial success and be very advantageous to the inhabitants of the colony. In his argument in the State Senate thereafter in 1792, it is apparent that the information in regard to canals derived from his European trip and his correspondence with Prof. Brand of London in relation to the success of the Duke's canal made a deep impression on his mind. His suggestion of the feasibility of the construc-

tion of water communication between Lake Champlain and the Hudson river is the earliest, or among the earliest, of anything of the kind in this country. In the memorial written after his death by Joseph Dennie, editor of the *Port Folio* and published in that periodical in February 1810, occurs this signal tribute to General Schuyler: "The General was a practical man in his whole life; and though he pursued the execution of well digested plans with the enthusiasm of a projector, he never suffered soaring fancy to disturb the balance of sober reason."

The Western Inland Lock Navigation company built five locks at Little Falls in a space of $2\frac{3}{4}$ miles and a canal $1\frac{1}{4}$ miles long at German Flats, and another two miles and three chains long from the Mohawk to Wood creek, at an expense far exceeding the original estimate of \$200,000, "to open lock navigation from the Hudson river to Seneca lake." The amount finally expended for that purpose aggregated \$480,000.

The Northern Inland Lock Navigation company expended upwards of \$100,000. One of the causes for this increased expenditure was the necessity for the reconstruction of the wooden locks at Little Falls, German Flats and Rome in six years, and these were replaced by locks made of brick and mortar of so poor a quality that they also gave way in a short time and it became necessary to rebuild them of stone, which was done under the superintendence of Mr. Weston, who was a practical engineer from England.

The treasurer of these companies was Thomas Eddy of New York City, who was the first advocate of uniting Seneca river with the Mohawk.

The canal had a bottom width of 26 feet, a surface width of 35 feet and a depth of 3 feet. In 1796 boats of sixteen tons burthen were plying between Schenectady and Seneca Falls.

In 1797, a canal two miles and three chains in length, $37\frac{1}{2}$ feet in width, with a prism to admit of boats drawing $3\frac{1}{2}$ feet of water was completed between the Mohawk river and Wood creek, which had two locks, one of ten and the other of eight feet lift. A short time thereafter a canal $1\frac{1}{4}$ feet in

to communicate; he announced in language highly poetic, and to which I cannot do justice, that at no distant day, the waters of the great western inland seas, would by the aid of man, break through their barriers and mingle with those of the Hudson."

Mr. Lewis then asked Mr. Morris: "How they were to break through these barriers? To which he replied that numerous streams passed through natural channels and that artificial ones might be conducted by the same routes."¹ Thus was predicted artificial water communication in this State as early as 1777, by one of its most distinguished citizens.

In a letter addressed to William Darby, in 1822, from Simeon De Witt, the surveyor general of the State of New York, he says:

"The merit of first starting the idea of a direct communication by water, between Lake Erie and the Hudson, unquestionably belongs to Gouverneur Morris. The first suggestion I had of it was from him. In 1803, I accidentally met him at Schenectady. We put up for the night at the same inn, and passed the evening together. Among the numerous topics of conversation, to which his prolific mind and excessive imagination gave birth, was that of improving the means of intercourse with the interior of this State. He then mentioned the project of *tapping Lake Erie*, as he expressed himself, and leading its waters, in an artificial river across the country to the Hudson. To this I very naturally opposed the intermediate hills and valleys as insuperable obstacles. His answer was, in substance, '*Labor improbus omnia vincet*'; and that the subject would justify the labor and expense, whatever it might be. Considering this as a romantic thing, and characteristic of the man, I related it on several occasions. Mr. Geddes now reminds me that I mentioned it to him in 1804, when he was a member of the Legislature; and adds, that afterwards, when in company with Jesse Hawley, it became a subject of conversation, which probably led to inquiries that induced him to write the essays which afterwards appeared in the newspapers, on the subject of carrying a canal from Lake Erie to Albany, through the interior of the country, without going by way of Lake Ontario."²

While standing at Fort Erie near the outlet of Lake Erie, in 1800, Gouverneur Morris in contemplating the

1. Hosack's *Memoir of Clinton*, 250, 251.

2. 2 *Publ. Buf. Hist. Soc.*, 26.

magnitude of the commerce which eventually would be seen at the foot of the Great Lakes, said:

"Here, as in turning a point of wood, the lake broke in on my view, I saw, riding at anchor, nine vessels, the least of them of one hundred tons. Does it not seem like magic? At this point commences a navigation of more than a thousand miles. Hundreds of large ships will at no distant period bound on the billows of those inland seas. . . . One-tenth of the expense borne by Britain in the last campaign, would enable ships to sail from London, through Hudson's river into Lake Erie. . . . The proudest empire in Europe is but a bauble, compared to what America *will* be, *must* be," etc.¹

It has been asserted that Gouverneur Morris on this occasion contemplated the construction of a canal with a uniform "declension and without locks from Lake Erie to the Hudson's river," which he assumed would admit of navigation by ocean-going vessels, which may, in a measure account for his rather extravagant language. But when it is remembered that the Board of Engineers on Deep Waterways made a report to the Government of the United States about one hundred years after Gouverneur Morris' prophecy, in which they recommended the construction of a deep waterway from Lake Erie to Lake Ontario and from Lake Ontario to the Hudson river, admitting the passage of vessels from 480 feet in length, with a width of 54 feet and a draft of 21 feet, with a carrying capacity of 8600 tons to vessels 540 feet in length, with a width of 60 feet and a draft of 28 feet, with a carrying capacity of 12,000 tons; and when it is also remembered that 8,353 vessels, having an aggregate tonnage of 14,659,242 tons, arrived and departed from the port of Buffalo during the season of 1907, some of which vessels were 605 feet in length, 65 feet in width and drew 20 feet of water, having a carrying capacity of from 10,000 to 14,000 tons each—vastly larger than the ocean-going vessels of his day—it will be seen that the prophecy of Gouverneur Morris was not so very extravagant after all, even though such vessels were unable to sail from "London through the Hudson's river into Lake Erie."

1. *Ib.* 237.

Charles C. Brodhead, surveyor and engineer in 1829, in reply to an inquiry made of him in relation to conversations had with Gouverneur Morris, says:

"In the year 1802 or 1803 I met Mr. Morris at Rome, and had a conversation with him on the subject of canals. He had just ascended the Mohawk in a boat, on a tour to the St. Lawrence by way of Oswego; and he inquired very particularly of me as to the situation and soil of the land along the Oneida lake, and the banks of the Oneida and Oswego rivers, and the country lying between the Oneida and Ontario lakes. I do not recollect that Lake Erie was mentioned in this conversation, and it is my opinion that it was not. After I had answered Mr. Morris' inquiries, he expressed much anxiety for a canal from the Hudson river to Lake Ontario."¹

Benjamin Wright in reply to a similar inquiry, writing in the year 1829, says: "Relative to the early views and suggestions of Gouverneur Morris in regard to the improvements by water communications, reported at the time the conversations or observations were made by him, about the year 1800, and soon after that period, they all tend to show that Mr. Morris looked only to canaling along the valleys of the natural water courses to Lake Ontario, and thence connecting Lake Ontario and Lake Erie by improvements around Niagara Falls, as contemplated by the Act of 1798." And Judge Wright adds: "I am confident Mr. Morris had no local knowledge of the formation of the country through the interior at that day; neither do I believe he gained any knowledge of the peculiar formation of that part of the State, until after the surveys made by direction of the State in 1808 and 1809. . . . After Mr. Morris visited the country as Canal Commissioner in 1810, he took a different view of the whole subject."

In his Annual Message to Congress, under date of December 2, 1806, President Thomas Jefferson in speaking of the application of revenues and the most desirable national objects recommends the application of the revenues to the "improvements of roads, canals, rivers, education, and other great foundations of prosperity and union under the powers which Congress may already possess or such

1. *Ib.* 239.

amendment of the Constitution as may be approved by the States."¹

The early part of the nineteenth century marked the beginning of an era of territorial expansion under the Ordinance of 1787, and of vast public improvements in the United States. The principles of republican institutions had been embodied in the Constitution of the United States and were in operation in both the National and State Governments. The people began to turn their attention to their domestic affairs. The country was new, highways were still to be laid out and railways were unknown. Natural waterways offered the chief means of transportation. The familiarity of many prominent statesmen with European waterways then in successful operation, their knowledge of the adaptability of the topography of our territory for the building of canals and of the facility of transportation over them and the necessities of various sections of the country in its settlement and development for adequate means of transportation, led to the construction of systems of canals in several states. Senator Thomas Worthington of Ohio, voicing well-defined public sentiment on this subject in 1807, introduced a resolution in the Senate of the United States, which was adopted on March 2, 1807, in the following language:

"Resolved, That the Secretary of the Treasury be directed to prepare and report to the Senate, at their next session, a plan for the application of such means as are within the power of Congress, to the purposes of opening and making canals; together with a statement of the undertakings of that nature which, as objects of public improvements, may require and deserve the aid of government; and also a statement of works of the nature mentioned which have been commenced, the progress which has been made in them, and the means and prospects of their being completed, and such information as, in the opinion of the Secretary, shall be material in relation to the object of this resolution."

On April 4, 1808, Albert Gallatin, Secretary of the Treasury, in obedience to the resolution of the Senate of

1. "Messages and Papers of the Presidents," by James D. Richardson [Washington, 1900], I, 456.

March 2, 1807, made his Report on Roads and Canals, constituting Document No. 250 of the first session of the 10th Congress and comprising nearly 200 folio pages on the roads and canals, constructed and proposed in the United States.

In this extended Report may be found a comprehensive review of the canals and canalized rivers of the United States then in operation and surveys, maps and estimates of many proposed canals. Among other things the Secretary says: "The general utility of artificial roads and canals is at this time so universally admitted, as hardly to require any additional proofs." After assigning various reasons why the General Government might alone undertake these vast public improvements, that were beyond the reach of private enterprise or State accomplishment, he continues:

"The early and efficient aid of the Federal Government is recommended by still more important considerations. The inconveniences, complaints, and perhaps dangers, which may result from a vast extent of territory, can not otherwise be radically removed or prevented than by opening speedy and easy communication through all its parts. Good roads and canals will shorten distance, facilitate commercial and personal intercourse, and unite, by a still more intimate community of interests, the most remote quarters of the United States. No other single operation, within the power of Government, can more effectually tend to strengthen and perpetuate that union which secures external independence, domestic peace, and internal liberty."

This broad and patriotic view, however, did not impress itself on Congress, as will be hereafter shown.

After describing several short canals in operation to overcome the rapids and falls in various rivers in the Atlantic States and the improvements proposed in other rivers and the various canals partially constructed or projected in Massachusetts, New Jersey, Delaware, Maryland, Pennsylvania, Ohio, Virginia and the Carolinas, the Secretary presents surveys and estimates of the cost of construction of a canal between the Hudson river and Lake Champlain and between Oneida lake and the Hudson river via the Mohawk and Wood creek and between Oneida lake and

Lake Ontario and between Lake Ontario and Lake Erie for sloop navigation.

The cost of the first of these canals was estimated to be \$800,000, the second to be \$2,200,000, and the third to be \$1,000,000. The first two canals were to be $2\frac{1}{2}$ feet deep, 24 feet wide at the bottom and 32 feet wide at the top and admit boats of ten tons capacity. In this report may also be found a statement of the incorporated companies authorized by the several states to open up water communication in their respective territories, including the Western Inland Lock and Northern Inland Lock Navigation companies of New York and their existing *stat*i.

The data relating to these companies were taken principally from the report of the Engineer, William Weston, to the directors of the Western and Northern Inland Lock Navigation companies under date of December 23, 1795, and the first Report of the Directors of the Western Inland Lock Navigation companies made to the Legislature under the date of November, 1795;¹ and from the second Report of the directors of the Western Inland Lock Navigation Company made to the Legislature on February 16, 1798; and from a Report of a Committee appointed by the Directors of the Northern Inland Lock Navigation Company under date of October 30, 1792; from communications of Thomas Eddy to Samuel Osgood, Esq., under date of October 29, 1807; from a report made by George Huntington to Secretary Albert Gallatin, under date of December 29, 1807; and from the original and supplemental Acts, under which these companies were organized. This report of the Secretary of the Treasury recommends an appropriation of \$20,000,000, by the Federal Government, in annual installments of \$2,000,000 each year for roads and canals, the major part of which was to be devoted to opening up water navigable communication in the several States considered. The research into the history and conditions of canals such as that connecting the Red and Mediterranean seas, through which passed the fleet of King Solomon to join that of Hiram, King of Tyre, to proceed to Ophir in search of

1. Both of these are printed in a Pub. Buf. Hist. Soc.

gold¹ referred to by Herodotus and other historians; such as the Royal canal of Babylon, more than six hundred miles in length; such as the Fossa Mariana built by the Romans for military purposes about 101 B. C. connecting the Rhone and the Mediterranean; such as the Roman canal connecting the Tiber and the sea; such as the Grand canal of China, soon to be cleared out and improved by imperial appropriation recently made, "which," it is said, "discharges itself on both sides into a great number of others," accommodating "the most part of the towns and villages" and answering "the conveniences of travellers and traffic" and other waterways, as well as the wealth of learning displayed in the argument of the general utility of artificial waterways, as established by the canals of Holland; by the Languedoc canal, 180 miles in length with its 114 locks and a prism 6 feet in depth and 30 feet wide at the bottom and 60 feet wide at the surface, connecting two seas; by the canal of the Duke of Bridgewater extending from Worsley to Manchester, and many others, and the breadth of view entertained by the projectors of these avenues of trade and travel, together with the copiousness of illustration, drawn from the Italian, Dutch and French sources, show that the captains of industry and statesmen of the period fully appreciated in national development the importance of an active commerce, in its enlarged sense, whereby "the world becomes as it were one single family."

Robert Morris in Pennsylvania was no less zealous than were General Philip Schuyler and Robert Fulton in New York or General George Washington in Virginia, who with many others left nothing unsaid to enlighten their countrymen and convince them of the advantages of transportation by water over any other method then known to man.

In Massachusetts there was in operation the Middlesex canal, 27 miles in length, connecting the Merrimac river with Boston harbor, 20 feet wide at the bottom and 3 feet depth of prism with 20 locks 75 feet in length and 10 feet wide, admitting of the passage of boats of 14 tons capacity, which cost \$478,000, and was said to be "the best artificial naviga-

1. I Kings, ch. 9.

tion in the United States." This was subsequently lengthened and enlarged. In 1807, Jesse Hawley, formerly engaged in mercantile business at Geneva, published under the *nom de plume* of "Hercules" a series of letters, most of which appeared in the *Genesee Messenger*, in advocacy of a direct overland water communication between Lake Erie and the Hudson. In these he calls attention to such canals as the Languedoc, the Kiel, the Clyde with its prism seven feet deep and with locks 75 feet long and 20 feet wide and to many others in successful operation in various parts of Europe. He discusses very intelligently the possibilities of internal waterborne commerce over the natural and proposed artificial waterways of the state and in such a manner as to challenge the attention of the people of the state and to arouse deep interest in the matter of canal construction in this State.

As early as 1808, inland navigation received legislative consideration in New York, when, on motion of Joshua Forman of Onondaga, the Assembly adopted a resolution providing that "a joint committee be appointed to consider the propriety of exploring and surveying the most eligible route between the Hudson river and Lake Erie to the end that Congress may be enabled to appropriate such sum as may be necessary to the accomplishment of the object" of effecting water communication through the State between the Great Lakes and the sea, the sum of \$600.00 was appropriated to enable the Surveyor-General "to cause an accurate survey to be made of the rivers, streams and water (not already actually surveyed) in the usual route of communication between the Hudson river and Lake Erie, and such other contemplated routes as he may deem proper." Judge Forman says: "So intent was the Surveyor-General on going through Lake Ontario, that he expended most of the money in exploring routes in that direction." The projectors of the system of inland waterways fully understood its importance and the prestige it would give the State, for in the preamble of the concurrent resolution, presented in the Assembly on March 27, 1808, by Hon. Thomas R. Gold of Oneida County, chairman of the Joint Legislative Com-

mittee and adopted, are, *inter alia*, the following significant conclusions:

"In tracing the vestiges of ancient states, in whose councils munificence, guided by wisdom, presided, the remains of commercial improvement in public canals and other undertakings, make the advanced state of society, and will attest the empire of the arts of peace, while military achievement has shed lustre on Nations, works of public utility, tending to the happiness and welfare of society, record the exercise of superior virtues and afford monuments of true and lasting glory. Along the extended route of a contemplated canal from Hudson river through the waters of the Mohawk, and the intermediate lakes to Lake Erie, is presented to the eye of the traveller, a country unequalled for fertility, in so great extent, in any part of the United States, and not surpassed, it is believed, by the fairest regions of the Eastern World."

Prior to this, however, the attention of the Legislature had been called to various matters in relation to improvement of inland navigation, and in 1792, the Western and the Northern Inland Lock Navigation Companies, had been incorporated, but the expense of their respective undertakings was so great, that it was impossible to carry them to completion, and they were finally absorbed by the State in the construction of its artificial waterways.

Pursuant to the foregoing concurrent resolution, Mr. James Geddes made his first Report to the Surveyor-General of the State in 1809. It was accompanied by maps, engineering data and other information, communicated to the Legislature, setting forth the tentative routes and physical obstacles thereto as well as the benefits that would accrue from what Simeon De Witt, the Surveyor-General, in 1809, denominated "our grand canal."

VII. THE "GRAND" CANAL TAKES SHAPE.

The first Commissioners named in the concurrent resolutions of March 13 and 15, 1810, introduced in the Senate and ably supported by Jonas Platt, were Gouverneur Morris, Stephen Van Rensselaer, William North, De Witt Clinton, Thomas Eddy, Peter B. Porter and Simeon De Witt. They

made their first report to the Legislature on March 2, 1811. In it they canvass the project in all its phases and suggest that it is for the Legislature to determine whether or not the State alone undertake the work, or negotiations be opened with the National Government for Federal aid.

In this Report the views of Gouverneur Morris were elaborated by him and subsequently embodied in the Report of the Commissioners of whom he was President, appointed March 13-15, 1810, to explore the route of an inland navigation from Hudson river to Lake Ontario and Lake Erie, which was transmitted to the Legislature on March 2, 1811, together with the reports and maps of James Geddes, the experienced engineer employed by the Surveyor-General to make the survey and map of the route from Lake Erie to the Hudson. This report was criticised by Dewitt Clinton, although he was one of the commissioners making it, on the ground that "they" (the commissioners),

"committed the preparation of their draft to the president, Mr. Morris, a man of elevated genius, but, being too much under the influence of a sublimated imagination, conceiving the sublime idea of creating an *artificial river* from the elevation of Lake Erie to the Hudson, he digressed into a long exposition of the facilities and advantages of an *inclined plane canal*, wherein he passed over rivers and lakes by aqueducts, and valleys by mounds, in order to maintain his descent. When the board assembled to consider the draft, they, from motives of delicacy, did not insist upon striking out this part of the report, especially as it was hypothetical from its very nature, and a mere gratuitous suggestion, in page 30 it says: 'Preliminary points are to be adjusted, and on these the first is whether it is to be made for sloops or barges. The expense of the former will, it is believed, be at least double that of the latter. Another question, whether it is to be carried along an inclined plane, or by a line ascending and descending, must be decided by a comparison of the expense and of the utility of each way.'

"With the exception of the plan of the canal, the report was every way worthy of the pen of its author. It established the practicability of an inland canal, and illustrated its advantages in a masterly manner. The cost was estimated at five millions of dollars."¹

The inclined plane was the earliest method adopted for elevating a vessel from a lower to a higher level and was in

1. "The Canal Policy of the State of New York . . . by Tacitus" [Albany, 1821], 24, 25.

use in Egypt, Italy and other countries long before the invention of locks, the novelty of which is claimed by the Dutch of Holland and also by the Italians for Leonardo da Vinci and two brothers, who were engineers residing in Viterbo.

The first canal built in this country, in 1793, around the falls of the Connecticut river at South Hadley, Massachusetts, under the supervision of the engineer, Benjamin Prescott of Northampton, was operated by the use of inclined planes by running the boats into a movable caisson filled with water, which was "hailed up by cables operated by water-power." Gouverneur Morris must have known of the existence and practical operation of short canals in several states provided with locks and that the inclined plane was no longer in general use.

In the Canal Papers of Merwin S. Hawley and George Geddes, read before the Buffalo Historical Society many years since,¹ may be found a review of the arguments presented in behalf of some of the claimants to the originality of suggesting a great artificial waterway between Lake Erie and the Hudson. Cadwallader Colden, Sir Henry Moore, Christopher Colles, General Philip Schuyler, George Washington, Elkanah Watson, George Clinton, Gouverneur Morris, Jesse Hawley, James Geddes, and others, respectively have been so credited. It is not my purpose to enter into the discussion of the controverted question as to the person or persons entitled to the credit of first suggesting a continuous waterway from the Great Lakes on the West to the tidewater on the East. It is more in conformity to modern historical research to present the undisputed facts so far as they are available in relation to this controverted question together with the views and suggestions of engineers, military officers, provincial and State officials, civilians, travellers and others, who in the 17th, 18th and 19th centuries traversed the fair domain between the Hudson on the East and the Great Lakes on the West, as I have endeavored to do in this paper with such comment thereon, as appears to me warranted after an investigation and study of the subject extending over a period of

1. Both of these are printed in a *Publ. Buf. Hist. Soc.*

several years, in order that the reader may draw his own conclusions. From all this it will not be an easy matter to determine the person or persons entitled to the merit of first suggesting artificial water communication between the Hudson river and the Great Lakes. It may have been an evolution resulting from many suggestions made for extending water communication between the Hudson and the Mohawk, the Mohawk and Wood creek, Oneida lake and Lake Ontario and Oneida lake and Seneca lake, and Seneca lake and Lake Erie, which several bodies of water were to be connected by several intervening waterways, the outgrowth of an agitation that began as early as the latter part of the 17th century and was not consummated until the early part of the 19th century.

The argument presented by Colonel Robert Troup in his "Vindication of the claim of Elkanah Watson to the Merit of projecting the State's Canal Policy" is reviewed in a pamphlet published under the title of "The Canal Policy of the State of New York," by "Tacitus," presumably De Witt Clinton. To this pamphlet Colonel Troup replied, reviewing at some length the arguments originally advanced by him and answering those contained in the pamphlet by "Tacitus."

Cadwallader D. Colden in his "Memoir" prepared at the request of a committee of the Common Council of New York on the occasion of the celebration of the completion of New York canal, in speaking of the merits of the various claimants to the credit of first proposing such a waterway, and after reviewing the claims of various persons who were supposed to have made any such suggestions, says:

"I have made these few references to show that at a very early date, not only the Champlain route to Montreal, but what we now call the Ontario route to the Lakes, was perfectly well understood; and that it was well known that the water courses running westwardly and northwardly, and those running southwardly and eastwardly, were separated by low lands of very little extent. Any one that had traversed those portages, or heard them described, and knew that artificial water ways had been constructed in other parts of the world, must have thought of completing these water communications by canals.

"How much in vain, then, must it be to enquire who first thought of connecting the western and northern, and southern waters? We might as well attempt to ascertain who had the first idea of making a highway between New York and Albany, or between any other important establishments in our country. Many had opportunities of acquiring all the knowledge connected with the subject, and it is probable that the thought of water communications, where they are now made by the Western Inland Lock Navigation Company, was common to hundreds at the same time.

"Could we pursue this enquiry with any prospect of success, it would be a futile labor. The discovery would be of no benefit to the community, and but little more credit would be due to one to whom the original thought might be traced, if he did nothing towards executing the idea he had conceived, than if it had been a dream."

De Witt Clinton, writing under the *nom de plume* of "Tacitus," in the pamphlet entitled "Canal Policy of the State of New York," says:

"Several persons may at different times have suggested the utility or practicability of connecting the waters of the Hudson and the Great Lakes—and the idea would naturally occur to every intelligent person who visited our western country, and has probably been entertained not only in the minds of most of the inhabitants, but has been frequently expressed by them at various times, and on different occasions. Any peculiar merit on this occasion must arise from initiating a procedure to obtain a proper plan of connection, from projecting this measure, from urging its adoption, or from aiding in its execution.

"It is well known that a water communication between the Great Lakes and the Hudson river may be effected in two ways: 1. By connecting the Mohawk river and Wood creek at Rome. In this route, which is called the *Ontario Route*, there were originally five portages—from Albany to Schenectady—at the Little Falls—at Rome—at the Falls of Oswego—and at the cataract of Niagara. This has always been, and now is, the course of navigable communication, and every traveller pursuing it would naturally remark not only upon the convenience, but upon the general facility of accomplishing an uninterrupted navigation by the establishment of canals and locks. In connection with this route, it was contemplated to facilitate communication with the Seneca and Cayuga lakes, by the improvement of the navigation of the Seneca river.

"2. The other route is denominated the *Erie Route*, and it is to consist in an artificial navigation, from the tide waters of the Hudson to Lake Erie by way of Rome. . . .

"The utility of canals to supersede the portages on the Mohawk and Oswego rivers, and to unite the Mohawk river and Wood creek, must have been obvious to every traveller. During what was called the French war, this route was of course the thoroughfare to the military posts on Lake Ontario—and Oswego and Niagara were the great seats of the fur trade, in times of peace as well as of war. Carver, who travelled through the western country in the summer of 1766, says: 'The Oneida Lake, situated near the head of the river Oswego, receives the waters of Wood creek, which takes its rise not far from the Mohawk river: These two lie so adjacent to each other, that a junction is effected by sluices at Fort Stanwix.' Thus we see at that early period, that an artificial water communication was made between those streams at Rome, and in times of high flood, there is no doubt, but that boats frequently passed from the one to the other.¹ The junction canal between the Mohawk river and Wood creek was laid out by Major Abraham Hardenburgh in June, 1791, and designated on a map nearly in the direction of the canal afterwards made by the Western Inland Lock Navigation Company."

Mr. Clinton says further in his pamphlet on "The Canal Policy of the State of New York," at pages 21-22, that after the Report of the Joint Committee of the Senate and Assembly had been presented through its chairman, Mr. Thomas R. Gold of Oneida, on March 21, 1808, that the house unanimously agreed to the following resolution:

"*Resolved*, (if the honourable the Senate concur herein), That the Surveyor-General of this State be, and he is hereby directed to cause an accurate survey to be made of the rivers, streams, and waters (not already accurately surveyed) in the usual route of communication between the Hudson river and Lake Erie, and such other contemplated route as he may deem proper; and cause the same to be delineated on charts or maps, for that purpose, accompanying the same with the elevations of the route, and such explanatory notes as may be necessary for all useful information in the premises—of which one copy shall be filed in the office of the secretary of this state, and another transmitted to the President of the United States, which the person administering the government of this State is hereby requested to do."

1. "The Canal Policy of the State of New York . . . by Tacitus," 10, 11.

"This resolution was concurred in by the Senate."

"So little was this scheme, which was adopted by the Legislature of this State, appreciated or known at that time, that Mr. Gallatin, in his luminous and comprehensive report of 1808, to the Senate of the United States, on canals, passes it over entirely unnoticed. The surveyor-general of this State, however, in pursuance of the resolution of the Legislature, endeavored to obtain the required information. For this purpose he employed James Geddes, Esq., of Onondaga county, as an engineer, and corresponded with Joseph Ellicott, Esq., of Batavia. These gentlemen were both practical surveyors, of experienced skill, of investigating minds, of sagacious observation, and perfectly well acquainted with the country. Mr. Geddes, in a letter dated Onondaga, 1st of July, 1808, writes: 'Some people boldly assert, that a canal can be made from Erie to Rome, with less labour, than any one ever was made for the same distance in so straight a direction.' Mr. Ellicott, in a letter dated 30th of July, 1808, in answer to the surveyor-general, opposes the Ontario route, and recommends the Erie communication by a canal from Tonawanta to Black creek, a distance of forty-three miles, which, by his estimate of 8,160 dollars per mile, would cost \$350,880; and from Genesee river to the navigable waters of Mud creek \$350,880, a total of \$701,760. Mr. Ellicott's communication contained a perspicuous description of the country, and was accompanied by an explanatory map. Mr. Geddes made a report with a map to the surveyor-general; all of which papers, with the writings of Mr. Hawley, were in the possession of the canal commissioners appointed in 1810—and unquestionably the idea of the Erie canal adopted by that Board originated from these investigations, fortified by the observations made under their direction."

"No further view, however, was taken on this subject until the session of 1810; when in consequence of representations from the Western Inland Lock Navigation Company, and from a great number of citizens of Albany, Schenectady, Utica and other places, interested in the internal trade of this State, commissioners were appointed, to explore the country between the great lakes and the navigable waters of the Hudson, and to report upon the most eligible route for a water communication. It was suggested by these representations as a point deserving of particular attention, that the commerce of the country was directed in a great degree to Canada. The report of Mr. Gallatin in favor of canals and roads had awakened the public attention to that important object; and the following proceedings took place in the legislature, on the motion of the Hon. Jonas Platt, then a senator, afterwards a judge of the Supreme

Court—a gentleman equally distinguished for strength of understanding and purity of heart:

STATE OF NEW YORK, *In Senate*, March 13, 1810.

WHEREAS, The agricultural and commercial interests of this State, require that the inland navigation from Hudson river to Lake Ontario and Lake Erie be improved and completed, on a scale commensurate to the great advantages derived from the accomplishment of that important object: and

WHEREAS, It is doubtful whether the resources of the Western Inland Lock Navigation Company are adequate to such improvement: Therefore,

Resolved, (if the honourable the Assembly concur herein), that Gouverneur Morris, Stephen Van Rensselaer, De Witt Clinton, Simeon De Witt, William North, Thomas Eddy, and Peter B. Porter, be, and they are hereby appointed commissioners for exploring the whole route, examining the present condition of the said navigation, and considering what further improvements ought to be made therein; that they be authorized to direct and procure such surveys as to them shall appear necessary and proper in relation to the objects; and that they report to the legislature at their next session, presenting a full view of the subjects referred to them, with their estimates and opinions thereon. And

WHEREAS, Numerous inhabitants of the counties of Oneida, Madison, and Onondaga, have by their petitions, represented that, by reason of the spring freshets, the Oneida lake is usually raised so high, as to inundate large tracts of land adjacent thereto, which are thereby rendered unfit for cultivation, and highly injurious to the health of the neighboring inhabitants; and that the said evils may be easily remedied by removing a bar, and deepening the channel at the outlet of the said lake: Therefore,

Resolved, (if the honourable the Assembly concur herein) that the commissioners above named be and they are hereby directed, to examine the subjects of the said petitions, and to report to the Legislature their opinions as to the practicability of the expense and the effects of removing the bar and deepening the channel at the outlet of said lake.

By order,

S. VISSCHER, *Clk.*

IN ASSEMBLY, March 15, 1810.

Resolved, That this house do concur with the honourable the Senate in their preceding resolutions.

By order,

J. VAN INGEN, *Clk.*

Senator Pope of Kentucky, in 1810, introduced a bill in the Senate of the United States, designed to facilitate communication by canals between different parts of the country. He proposed a union of the waters of the Hudson with Lakes Erie, Ontario and Champlain. On February 8, 1810, Peter B. Porter of New York presented a resolution in the House of Representatives, authorizing the appointment of a committee to examine into the expediency of appropriating lands for the opening of roads and canals, and supported the resolution by a well prepared speech setting forth the advantages to accrue to the country from proper internal communications. Thereupon a committee of twenty was appointed, of which Mr. Porter was chairman, and a bill was reported by that committee "for the improvement of the United States by roads and canals," among which was a provision for "opening canals from the Hudson to Lake Ontario, and around the Falls of Niagara."

Both the bill of Senator Pope and that of Congressman Porter failed of passage.

On April 8, 1811, an Act was passed, empowering the above named commissioners together with Robert R. Livingston and Robert Fulton "to make application in behalf of this state to the Congress of the United States, or to the Legislature of any State or Territory, to coöperate and aid in this undertaking, and also the proprietors of the land, through which such navigation may be carried, for cessions or grants to the people of this State" and for other purposes. That commission made its report to the Legislature on March 14, 1812, in which they say that the states of Tennessee, Massachusetts and Ohio acted favorably on the project, and the Committee of Congress also determined upon a favorable report; but when the report was formulated by a sub-committee, it received only four votes out of thirteen and Congress failed to give the matter its support, notwithstanding the fact that President James Madison, on December 23, 1811, sent a special message to Congress, transmitting a copy of the Acts of the Legislature, and stated in his message that

"The utility of canal navigation is universally admitted. It is not less certain, that scarcely any country offers more extensive oppor-

tunities, for that branch of improvements, than the United States; and none, perhaps, inducements equally persuasive to make the most of them. The particular undertaking contemplated by the State of New York, which marks an honorable spirit of enterprise and comprises objects of National, as well as more limited importance, will recall the attention of Congress to the signal advantages to be derived to the United States from a general system of internal communication and conveyance; and suggest to their consideration whatever steps may be proper on their part, towards its introduction and accomplishment. As some of those advantages have an intimate connection with arrangements and exertions for the general security, it is a period calling for these that the merits of such a system will be seen in the strongest lights."

VIII. LEGISLATIVE PROGRESS—THE DECISIVE VOTE.

On June 19, 1812, an Act was passed by the Legislature authorizing and empowering the commissioners mentioned in the Act entitled, "An Act to Provide for the Improvement of the Internal Navigation of the State," passed on the 8th day of April, 1811, who were Gouverneur Morris, Stephen Van Rensselaer, De Witt Clinton, Simeon De Witt, William North, Thomas Eddy, Peter B. Porter, Robert R. Livingston and Robert Fulton, "to purchase all the rights, interest and estate of the President, Directors and Stockholders of the Western Inland Lock Navigation Company in the State of New York, of, in and to the inland waters of the State, together with the locks, canals, lands and other property" held by the president and directors of said company, upon such terms and conditions as they, the commissioners, should deem reasonable, and in case of such purchase they were required to take the charge and management of said locks, canals, lands, and all other property and to exact the same tolls to the use of the people of this State as were received by the former owners of such canals and to make all rules and regulations as they might deem proper. This authority, however, was to be exercised conditionally only upon their obtaining satisfactory information from some experienced engineer that the accomplishment of the contemplated canal was practicable and when the commis-

sioners shall be authorized by the act of the Legislature to commence operations for opening said canal.

By the second section of said Act of June 19, 1812, the commissioners were authorized to procure voluntary cessions or grants of any lands for the proposed inland navigation from Lake Erie to the Hudson river.

By the third section of said act, they were authorized and empowered to borrow a sum of money not exceeding five millions of dollars, at six per cent., upon a loan for not less than fifteen years. And they were authorized to pledge the faith of the State for the payment of principal and interest.

A proposed bill was formulated to be presented to Congress but never passed.

The Seneca Lock Navigation Company was incorporated under chapter 144 of the Laws of 1813 for the purpose of improving the navigation between Seneca and Cayuga lakes. The company went on and built its locks and constructed its works, but subsequently under chapter 271 of the Laws of 1825 the construction of the Cayuga and Seneca canal was authorized and the State acquired all the stock, property and privileges of the Seneca Lock Navigation Company. The State has ever since continued to operate that canal and a detour has been made in the original route of the new barge canal up the Seneca river within a few miles of the Cayuga and Seneca lakes for the purpose of bringing them ultimately into communication with it.

Again on March 8, 1814, the commissioners made another report to the Legislature, in which they set forth the results of further investigations and their belief "that communication between Lake Champlain and Hudson river may easily be effected," and concluded the report with an extract from a letter of the eminent English engineer, William Weston of the Inland Lock Navigation Company, in which he says:

"Should your noble but stupendous plan of uniting Lake Erie with the Hudson, be carried into effect, you have to fear no rivalry. The commerce of the immense extent of country, bordering on the upper lakes, is yours forever, and to such an incalculable amount as would baffle all conjecture to conceive. Its execution would confer honor on the projectors and supporters, and would in its eventual

consequences, render New York the greatest commercial emporium in the world, with perhaps the exception, at some distant day, of New Orleans, or some other depot at the mouth of the majestic Mississippi. From your perspicuous topographical description, and neat plan and profile of the route of the contemplated canal, I entertain little doubt of the practicability of the measure. Perhaps this is the only question which the Legislature should be particularly anxious to have resolved. The expense, be it what it may, is no object when compared with the incalculable benefits arising therefrom, though doubtless, it will deserve attention, that the money granted liberally be wisely and economically expended."

To the report is annexed a schedule of cessions of land agreed to be made to the People of the State by the Holland Land Company and others. During the War of 1812-1814, several attempts were made to repeal several sections of the Act of June 19, 1812, which was not accomplished until the session of 1814.

Robert Fulton, writing under date of February 22, 1814, to Gouverneur Morris, on the advantages of the proposed canal from Lake Erie to the Hudson river, says:

"As I passed three years at various canals in England, to obtain practical knowledge on the manner of constructing them, and to make myself familiar with their advantages, and was well acquainted with some of the best engineers, I know this calculation to be correct. Hence one cent per ton per mile, is one dollar a ton for 100 miles, while the usual cost of wagoning is one dollar and sixty cents per hundredweight for 100 miles, or thirty-two dollars a ton. It consequently follows, that on a canal, a ton weight could be boated 3200 miles for the sum now paid to wagon it 100 miles; and the persons at 3200 miles from a good seaport, would have all the advantages of trade, or of bringing their product to market, which those who reside only 100 miles from market now enjoy, provided the canal were toll free. . . . From this one cent per ton per mile I will draw some interesting calculations on the present price of freight in sloops on Hudson's river, between New York and Albany, and show that it could be done much cheaper by a canal; the proof of them will be conclusive, that if a canal can give advantages superior to sloop navigation on Hudson's river, which is one of the most rectilinear and best in the world, the benefits to be derived from the one contemplated must be vastly superior to every kind of road, river or lake communication from Lake Erie to Hudson's river."

Mr. Fulton says that from custom-house returns he found that there were 400 sloops or vessels of every description employed with an average capacity of sixty tons each, making eleven trips up and down the Hudson river in one season, and he estimates the tonnage of the Hudson river at 504,000 tons, upon which he computes the saving in freights, in the aggregate, at \$550,200. His letter has many pertinent suggestions with reference to the advantages to accrue from such a canal and his opinion had much weight. Gouverneur Morris, who replied to this letter from Morrisania, on March 3, 1814, said that he considered it of so much value that he should transmit a copy to Albany "that it may be communicated to members of the Legislature."

Governor Tompkins in his speech at the opening of the Legislature of 1816, said:

"It will rest with the Legislature, whether the prospect of connecting the waters of the Hudson with those of the Western Lakes and of Champlain, is not sufficiently important to demand the appropriation of some part of the revenues of the State to its accomplishment, without imposing too great a burden upon our constituents. The first route being an object common with the States of the West, we may rely on their zealous coöperation in any judicious plan that can perfect the water communication in that direction. As it relates to the connecting the waters of the Hudson with those of Lake Champlain, we may with equal confidence count on the spirited exertions of the patriotic and enterprising State of Vermont."

There followed on March 8, 1816, a further report from the commissioners to the Legislature, in which they say:

"During the late War it was impracticable to carry on any further operations to forward the objects of their appointments, by pursuing the surveys and levels heretofore commenced with a view to ascertain the most desirable route for the proposed canal from Lake Erie to the tidewaters of the Hudson river. . . . It now remains for the Legislature to provide means to enable the commissioners to engage a competent professional engineer to examine minutely the whole of the ground and decide on the most expedient route. . . . From the number and respectability of the applications now before the Legislature in favor of an immediate commencement and vigorous prosecution of this great National work, it is evident that the

immense advantages which would result from its completion are duly appreciated by our fellow-citizens; and it only remains for the Legislature to sanction by their approval an undertaking which combines in one object, the honor, interest and political eminence of the State.

"While the commissioners cannot express, in terms sufficiently emphatic, their ideas of the incalculable benefits which will arise from a canal navigation between the great western lakes and the tidewaters of the Hudson, they fully appreciate the advantages of connecting the waters of Champlain with the Hudson, and they most respectfully represent to the Legislature, the expedience of adopting such preliminary measures as may be necessary for the accomplishment of this important object."

Memorials from Cadwallader D. Colden and others of New York and from the citizens of the village of Troy and petitions of the inhabitants of the towns of Buffalo, Seneca, Geneva, Reading, Junius, Lyons, Caledonia, Genoa, Lenox, Ulysees, Avon, Paris, Bloomfield, Hartland, Ridgeway, Russia, German Flats, Newport and Schuyler and of the inhabitants of the City of Albany and of the Mayor, Aldermen and Commonality of the City of New York and of the inhabitants of the counties of Oneida, Genesee and Chautauqua, were presented to the Legislature in 1816, favoring the construction of a canal from Lake Erie to the Hudson river.

The memorial of the citizens of New York in favor of canal navigation between the great western lakes and the tidewaters of the Hudson was presented to the Assembly on February 21, 1816, and ordered printed.

De Witt Clinton, Thomas Eddy, Cadwallader D. Colden, and John Swartwout were the Committee appointed to draft and circulate it, but it was largely, if not entirely, the work of De Witt Clinton. This memorial was the most comprehensive statement ever made to a legislative body in America, setting forth the advantages to accrue from inland water navigation. It is an exhaustive review of the advantages of water transportation in other countries; and its clear presentation of the advantages to the State of New York that would accrue from the construction of a system of waterways from the Hudson to Lake Erie, Lake Ontario and Lake

Champlain, made a deep impression on the legislators of that day and is worthy of perusal by this and subsequent generations.¹

Mr. Van Rensselaer, from the joint committee of the Senate and Assembly, on March 21, 1816, reported "that the committee had taken into consideration the numerous petitions and memorials from the cities, counties, villages and towns in this State, which evinced on the part of the petitioners and memorialists (amounting to several thousands in number) great anxiety that the improvement of the inland navigation of the State should engage the early attention of the Legislature and that vigorous measures should be adopted for its early completion." That committee further reported that the "sources of revenue as the benefits to result from the canal navigation gradually unfold themselves will be found, in the opinion of the Committee, in the increased value of real estate in the great commercial cities, the towns and villages and generally that part of the country in the vicinity of which the said canals shall pass."

Various sources of revenue are enumerated in the report whence funds were to be realized for the construction of this work, the expense of which was estimated to be six millions of dollars. The estimate was not far out of the way, for the original cost of the Erie Canal was \$7,143,789.

Statements of the feasibility of the route and the engineering problems involved and the cost of different sections were furnished by James Geddes and Benjamin Wright. The Assembly entered upon the consideration of the proposed act for improving the internal navigation of this State on April 3, 1816, and continued the discussion thereon on April 10th, 11th, 13th, and 15th, when the bill received 83 affirmative votes and 16 negative votes on a report of the Committee of the Whole. The bill had its third reading in the Assembly on April 15, 1816, and received 91 affirmative votes and was passed, there being only 18 negative votes.

In the Senate the bill was taken into consideration on April 16, 1816, and was considered on April 17th, at which time certain amendments were proposed to the original bill.

1. It will be found in subsequent pages of this collection.

On the latter date the bill passed the Senate with some amendments and was returned to the Assembly and the amendments concurred in by the Assembly on the same day. The bill was approved by the Governor, and became chapter 237 of the Laws of 1816.

Under that act the canal commissioners were "to cause those parts of the territory of this State to be explored and examined for the purpose of fixing and determining the most eligible route, and cause necessary surveys and levels to be taken and accurate maps, field books and drafts thereof to be made, and further to adopt and recommend proper places for the construction and foundation of the said canals, and of the locks, dams, embankments, tunnels, and aqueducts, which might be necessary for the completion of the same and cause all necessary plans, drafts and models thereof to be executed under their directions."

The commissioners met in the city of New York May 17, 1816, and organized by electing De Witt Clinton president, Samuel Young secretary, Myron Holley treasurer. Charles C. Brodhead was designated as engineer for the eastern division from Rome to the Hudson river; Benjamin Wright was designated as engineer of the middle section, extending from the Seneca river to Rome, and James Geddes was designated as engineer for the western section, extending from Lake Erie to Seneca river. William Peacock was designated as engineer to explore and survey the country from the east line of the Holland Purchase to Buffalo south of the ridge under the supervision of Joseph Ellicott, Esquire, to determine as to whether or not the canal might not be constructed more economically along that route. The Champlain canal was in charge of an engineer of the name of Col. G. Lewis Garin.

At the extra session of the Legislature, convening on November 5, 1816, Governor Tompkins said: "It is respectfully submitted to your wisdom to make provision at the present session, for employing a part at least of the state prisoners, either in building the new prison at Auburn, erecting fortifications, opening and repairing great roads, constructing canals, or in making other improvements."

The suggestion of the employment of convicts on State works has been repeated on several other occasions since Governor Tompkins first proposed it, and it is possible that the State may find it advantageous so to do in the building of its system of highways now under process of construction.

Two of the commissioners appointed under chapter 237, Laws of 1816, after visiting the Middlesex canal in Massachusetts, recommended that the Erie canal should have a width of 40 feet at the water surface and 28 feet at the bottom, and a depth of 4 feet and that the locks should be 90 feet in length and 12 feet in width, to admit of vessels carrying 100 tons. In their official report of February 17, 1817, these suggestions were adopted, and the proposed Erie canal was divided into the three sections as hereinbefore defined.

The report is lengthy and contains many details as to the route, engineering problems, estimates of probable cost of construction, bridges and other matters.

One of the interesting conclusions reached by the commissioners in relation to the use of the Tonawanda creek is that such creek might be used for 17 miles by using the bed of the creek, at an expense of \$18,700. Although the commissioners say that "in most cases, experience is decidedly against making use of the channels of natural streams on any part of the route of a canal navigation. These streams are so apt to produce injury to the artificial works with which they are connected, by freshets in the spring with a strong and muddy current, by want of water in the fall, and the sudden changes to which they are liable at all seasons, that they should be avoided, except as feeders, almost always when it is practicable. But to these remarks the Tonnewanta affords an exception."

This aversion to the use of the beds of natural streams of water on the part of the commissioners undoubtedly had much to do in determining the route of the original Erie canal through the State to avoid them; whereas the engineers of today prefer the beds of natural streams of water for canal construction wherever it be possible to utilize the same, and accordingly the new barge canal for two-thirds of its length is to be constructed through the beds of natural

streams of water. A similar policy has dominated canal construction in Europe. All the principal rivers of that continent, where not navigable, have been canalized so that the beds of natural streams of water constitute a large part of the navigable waterways, which, in France, are divided into two categories: the first comprises all waterways having a depth of not less than two meters, with locks not less than 38—50/100 meters in length and 5—20/100 meters in width, substantially as provided by the Law of 1879, and the second class comprises all other navigable waterways.

This report on being presented to the Legislature was referred to a joint committee of the Senate and Assembly, and acted upon by that committee in its report made on March 18, 1817, through its chairman, Mr. Ford, in which they conclude that "your committee are of opinion, that these canals would be beneficial to every section of the state. They would eventually make New York the greatest commercial emporium in the world; and the greatness of the commerce of that city, would, in a variety of ways, promote the interests of the southern district. . . . Experience shows, in all the rich cities of Europe, that as the means of communication with the interior are rendered easier, better and more extensive from those cities, the value of property has uniformly increased in their vicinity. . . . These canals would promote the interests of the middle district, by furnishing it with gypsum, salt, iron, lumber and fuel, in many places cheaper than they can otherwise be obtained, and by increasing the markets for all its surplus productions. . . . To the western district, the importance of these canals is too well known, and too generally admitted to need elucidation here."

In this report they recommended the purchase of the "interest of the Western Inland Lock Navigation Company, and for commencing and completing a canal navigation, between Rome and the Seneca river, and between Lake Champlain and the Hudson river. . . ."

On March 18, 1817, the commissioners appointed under chapter 237, Laws of 1816, made their report to the Legislature on the Northern or Champlain canal, in which they

set forth the changes to occur to the northeastern counties of the State, rich in timber, ores and other products and the benefits that would accrue thereto by the construction of a canal between Lake Champlain and the Hudson river, the expense of which is estimated at \$871,000. In concluding which they say: "Before the lapse of half a century, those who succeed us, will witness, in the consolidation of those cities and villages into one great city, a union of interests and sympathies which will totally dissipate the apprehensions and jealousies that may now exist."

The commission of which De Witt Clinton was president made application to Congress under date of November 10, 1816, "for cessions, grants or donations of land or money, for the purpose of aiding in opening a communication by means of canals, between the navigable waters of Hudson's river and Lake Erie and the said navigable waters and Lake Champlain," in which were set forth, among other things, the benefits to the United States, including the benefits of the increased facility of transportation to the whole country between the Great Lakes, the Mississippi and the Ohio, and the impetus to trade, both foreign and domestic, between the seaboard and the interior of this country. This was supplemented by an address to the Members of Congress from this State. Letters passed between the New York Canal Commissioners and Thomas Kirker, Speaker of the House of Representatives of Ohio and Abraham Shepherd, president of the Senate of that State and Paul Busti, agent of the Holland Land Company, Augustus Porter of Niagara Falls, Col. W. Mynderse and others, in relation to various phases of the questions confronting the New York Commissioners.

Congress did not act on the matter, however, and the State assumed the responsibility of the inception of the vast undertaking. On March 19, 1817, Assemblyman William D. Ford of Herkimer County, from the Joint Committee on Canals, brought in a bill entitled "An Act concerning navigable communications between the Great Western Lakes and the Northern Lakes and the Atlantic Ocean," to which various amendments were offered, while it was

under consideration in the Assembly on April 8th, 9th and 10th.

Among other things the Act provided for a canal fund to consist of appropriations, grants and donations as might be made by the Legislature, the Congress of the United States and by corporations, companies and individuals to be managed by "the Commissioners of the Canal Fund," consisting of the Lieutenant Governor, the Comptroller, the Attorney-General, the Surveyor-General, the Secretary and Treasurer." It continued the former commissioners and authorized them "to commence making the said canals." It authorized the commissioners "to enter upon, take possession of and use any lands, waters and streams necessary for the prosecution of the improvements," intended by said act; and provided for the appointment of appraisers, by the Justices of the Supreme Court "to make a just and equitable estimate and appraisal of the loss and damage, if any, over and above the benefit and advantage to the respective owners and proprietors or parties interested in the premises so requested for the purposes" of said act. It authorized the commissioners to acquire, by a prescribed procedure analogous to condemnation proceedings, "all the interest and title of all the lands, waters, canals, locks, feeders, and appurtenances" of the Western Inland Lock Navigation Company, and vest the same in the People of the State.

Several amendments involving various questions were proposed, but that which gave rise to the most debate related to the fiscal features of the bill.

In the Assembly Judge Nathaniel Pendleton of Dutchess, Wheeler Barnes of Oneida, William B. Rochester of Allegany and Steuben, William A. Duer of Dutchess, and Elisha Williams of Columbia, supported the measure. In its advocacy Judge Pendleton said:

"The committee reported that the counties west of the Oneida, inclusive, had paid annually one million of dollars for the transportation of merchandise and supplies of all kinds from Albany for their clothes, farms, manufactures, etc., and that the average freight to Buffalo, the most distant point, was one hundred dollars per ton—that the price of freight from Montreal to the same point, was about

sixty dollars. Suppose sixty dollars to be the average price, it followed that they required upwards of 66,000 tons to supply their wants. If a safe and easy navigation can be effected by means of canals and locks, which he believed to be practicable, at a comparatively small expense, the price of freights at three cents per ton per mile, which was the lowest sum spoken of, would, on an average, enable them to obtain those supplies at ten dollars and a half per ton on the whole route, making a gain of forty-nine dollars and a half, a saving of more than \$700,000 per annum on this single charge upon their industry. In relation to the transportation of their produce to market, it was stated that it might be carried to Montreal at thirty dollars. The quantity of tonnage, however, was much greater, as the articles were more bulky, and this item would make the saving in transportation alone one million dollars per annum in those counties."¹

He proceeded to show that all the counties in the State would be benefited by the proposed waterway; farms would appreciate in value, villages and cities spring up along the route of the canal, and Albany would be in a better position to compete for the trade of the Western country with Montreal than it had been theretofore. He expressed the belief that the work could be accomplished for seven or eight millions of dollars.

It was during this debate that Elisha Williams of Columbia, addressing himself to a leading member of the New York delegation, made use of an expression which has been oft repeated since:

'If the canal is to be a shower of gold, it will fall upon New York; if a river of gold, it will flow into her lap.'

There were in the Assembly that passed the decisive bill 122 members, of whom 64 voted in the affirmative on the whole bill, 36 in the negative and 22 were not recorded. By counties this vote ran as follows: Albany, 4 for; Allegany and Steuben, 2 for; Broome, 1 not recorded; Cattaraugus, Chautauqua and Niagara, represented by the same members, 2 for; Cayuga, 3 for, 1 against; Chenango, 2 for 1 against; Clinton and Franklin, 1 for. The 4 Columbia members, under the strong leadership of Elisha Williams, who made one of the most effective speeches in favor of

1. Hosack's "Memoir of DeWitt Clinton," 445, 446.

the bill, all voted for it. Cortland, 1 for it; Delaware, 1 against, 1 not recorded. Of the 5 assemblymen from Dutchess County, two, Duer and Pendleton, voted for the bill. Emott and Sherman opposed it, and the 5th member, Joel Benton, was not recorded. The member for Essex County voted against it. Of the 3 members from Genesee, two were for it, 1 against it. Clinton County's two members were against it. Herkimer County's 3 members were for it. Jefferson County gave 1 vote against, 1 not recorded; Kings County was unrepresented; Lewis County gave 1 vote against the bill; Madison 3 for it. Of the 5 members from Montgomery County 4 were for it, the 5th, Benedict Arnold, not being recorded.

Of the 11 members from New York County 7 voted against the bill and 4 are not recorded. The vote of Oneida stood 4 for, 2 unrecorded. Onondaga, 3 for, 1 against; Ontario, 3 for, 4 unrecorded. The entire Otsego County delegation of 5 voted for it. Putnam County gave 1 against; Queens 3 against; Rensselaer 5 for; Richmond 1 against; Rockland 1 against; St. Lawrence 1 not recorded; Saratoga 1 for, 1 against, 2 not recorded; Schenectady 1 for, 1 not recorded; Schoharie 2 for, 1 not recorded; Seneca 2 for, 1 not recorded; Suffolk 1 against, 2 not recorded; Sullivan and Ulster 1 for, 1 against, 2 not recorded; Tioga 1 not recorded; Washington and Warren, 1 for, 4 against; and Westchester's delegation of 3 members were all against the bill.

It must be remembered that some of these counties were much larger geographically than they are at present and included territory since erected into other counties.

In 1817 the State was divided into four senatorial districts, known as the Southern, Middle, Eastern and Western. The Southern district included at that time Dutchess, Kings, New York, Putnam, Queens, Richmond, Rockland, Suffolk and Westchester counties and was entitled to six senators. The bill was taken up in the senate on April 11th, 12th and 14th, and further amended.

Mr. Lucas Elmendorf of Ulster, and Peter R. Livingston of Dutchess, spoke in opposition to the bill, and Mr. George

Tibbits of Rensselaer, and ex-Governor Martin Van Buren, made strong speeches in favor of it. Mr. Van Buren on that occasion discussed the various provisions of the bill and among other things said:

"Lay out of view all the accidental resources, and the revenue from the canal, and in completing the work you will only entail upon the State a debt, the interest of which will amount to but about \$300,000. . . . The tax would not amount to more than one mill on the dollar, unless the report of commissioners is a tissue of fraud or misrepresentation, this tax will be sufficient, and more than sufficient, to complete the canal."

Mr. Van Buren contended that the duties upon salt, and the auction duties, were a certain source of revenue, and that these two sources of revenue would be abundant, and more than abundant, forever to discharge the interest of the debt to be created. "Ought we," he asked, "under such circumstances, to reject this bill? No, sir; for one I am willing to go to the length contemplated by the bill. The canal is to promote the interest and character of the State in a thousand ways." He considered it "the most important vote" he ever gave in his life—"but the project, if executed, would raise the State to the highest possible pitch of fame and grandeur." When he took his seat he was warmly congratulated by Mr. Clinton upon his exertions "in the most flattering terms."

On the final passage of the bill and amendments in the Senate, on April 15, 1817, five or six senators from the Southern district voted against its final passage, and one senator from that district is not recorded.

After the passage of the bill in the Senate, it was returned to the Assembly, where some of the Senate amendments were concurred in and others rejected; and on April 15, 1817, it was sent to the Council of Revision and became on that day chapter 262 of the Laws of 1817.

The solid opposition of the Southern district in the Senate, including the counties now comprising greater New York, as well as the opposition from the same counties in the Assembly, was annoying to Mr. Clinton who frequently commented upon that opposition from a territory to be most

largely benefited, and may perhaps be a surprise to New Yorkers of to-day who are now among the strongest and most potential advocates of canal construction.

IX. THE CONSTRUCTION PERIOD.

By an act passed on April 12, 1820, entitled "An act concerning the Erie and Champlain Canals," the commissioners of the canal fund were authorized to borrow on the credit of the State, money sufficient to pay the damages sustained by the Western Inland Lock Navigation Company.

On June 24, 1820, the Commissioners to estimate the damage sustained by the Western Inland Lock Navigation Company made their report to the Supreme Court awarding damages to the stockholders of that Company, whose holdings of stock aggregated \$140,000, in the sum of \$91,616, and for the use of the People of the State, proprietors of stock amounting to \$92,000, the sum of \$60,204.80. These awards were approved by the Justices of the Supreme Court on August 11, 1820, and the amount going to individual stockholders paid on October 2, 1820.¹

Still on January 12, 1821, the Comptroller reported to the Legislature that the amount paid to extinguish the rights of the Western Inland Lock Navigation Company was \$152,718.52.² This latter sum may have included interest on shares owned by the People of the State.

For the purpose of raising revenue to pay the cost of such works the act further provided for the imposition of a duty or tax of twelve and a half cents per bushel upon salt manufactured in the county of Onondaga and the Western District of the State, a tax of one dollar upon each steamboat passenger for each and every trip or voyage such passenger might be conveyed upon the Hudson river on board of any steamboat over one hundred miles; and half that sum for any distance less than one hundred miles and over thirty miles; that the proceeds of all lotteries, which should

1. 1 "Laws of the State of New York in relation to the Erie and Champlain canals . . ." [Albany, 1825], 502-506.

2. 2 Canal Laws, 49.

be drawn in this State, after the sums theretofore granted upon them, should be paid; all the net proceeds from the Western Inland Lock Navigation Company and of said canals, including all grants and donations made for the purpose of making such canals; and all the duties upon sales at auction, after deducting certain appropriations therefrom made annually for certain enumerated, charitable purposes, should be applied to the canal fund. It also provided that the commissioners should raise the sum of \$250,000 by causing to be assessed and levied in such manner as the commissioners might determine and direct said sum, upon the lands and real estate lying along the route of said canals and within twenty-five miles of them, apportioning such tax on the land adjacent to the canals in such proportion for each as the commissioners should determine, with power to enforce the collection thereof; the assessment to be made on such lands according to the benefit conferred, subject, however, to rules and regulations to be approved by the Chancellor and judges of the Supreme Court. This provision, however, was suspended by the terms of section 5 of an act entitled "An Act concerning the Great Western and Northern canals" passed on April 7, 1819, until the further order of the Legislature.

A somewhat similar assessment on lands assumed to be benefited was recommended in the report of the Committee on Canals, appointed by Governor Theodore Roosevelt in 1899, in which they say:

"... while the canals have benefited the entire State, and every part of it, yet in those counties lying remote from the water routes the benefit has been less evident than in those adjacent to these routes. It has, therefore, seemed to us that it would be equitable that the expenses of completing the enlargement of the water routes should be borne by those counties through which these waters pass, instead of being paid by the entire State, as has been usually the custom hitherto."¹

At that time I was chairman of the Canal Committee of the Assembly, and considered such proposed assessment to defray the cost of canal enlargement to be in violation of

1. See Report of Committee on Canals of New York, 1900, pp. 32, 33.

the provisions of Section 4 of Article VII. of the Constitution. Accordingly I submitted the matter to the Attorney-General for his opinion and he so decided.¹ No such constitutional provision, however, limited the powers of the Legislature in 1817 and it proceeded to make such provision for raising revenues as appeared expedient to the Legislature and people of that day. The fiscal problems involved were quite as serious as the engineering problems. It required more foresight at that time, when the State, for the most part, was unsettled, its revenues uncertain and its resources unknown, to finance such a vast undertaking and more courage to carry it to execution than are now required to finance and build new barge canals. The framers of the Canal Law of 1817, however,

"Built better than they knew"

as may be seen from the results of the operation of the fiscal provisions of that statute.

On March 30, 1820, the steamboat tax imposed by the act of April 15, 1817, was suspended, and in lieu thereof a tax of \$5,000 was imposed upon the North River Steamboat Company. By the latter act the sum of \$25,000 was appropriated for the improvement of the Oswego river, under the direction of the Canal Commissioners.²

There was derived from the steamboat passenger tax to the time of its abolition in 1823 the aggregate sum of \$73,509.99; from the auction tax or vendue duty to 1836, when it was discontinued, the aggregate sum of \$3,592,039.05; and from the duty or tax on salt to 1836, when it ceased to be so applied, the aggregate sum of \$2,055,458.06. From these three sources were realized \$5,721,007.88, whereas the aggregate cost of the original Erie, Champlain and Oswego canals was only \$8,630,237. The proceeds of lotteries were absorbed in appropriations amounting to \$715,543, theretofore made to academies, colleges and other institutions, or for other purposes, so that nothing was realized from that source before

1. See Report of the Attorney General for 1900, pp. 145-172.

2. 1 Canal Laws, 514.

lotteries were prohibited by Sec. 11 of Article 7 of the Constitution of 1821.

In a report presented to the Legislature under date of January 31, 1818, the Canal Commissioners gave an account of their transactions after the enactment of the canal law of 1817.

The first work decided upon was the construction of that portion of the canal from Rome to Utica, as that summit "would command, at all times, an inexhaustible supply of water, embracing the Oriskany creek, the Mohawk river, Wood creek, and the more numerous and copious streams west of Wood creek, which cross the line of the canal, and discharge themselves into Oneida lake. . . ."¹

The first contract was dated June 27, 1817, and the work was commenced at Rome, the site of Ft. Stanwix, which had played an important part in the commercial history of the territory, on the 4th day of July, 1817. The people of the village arranged to celebrate Independence Day and the commencement of the excavation for the Erie Canal with proper ceremonies. They assembled at sunrise and were addressed by Judge Joshua Hathaway, president of the village, who introduced Col. Samuel Young, one of the canal commissioners, who spoke as follows:

"Fellow-citizens: We have assembled to commence the excavation of the Erie canal. The work when accomplished will connect our western inland seas with the Atlantic ocean. It will diffuse the benefits of internal navigation over a surface of vast extent, blessed with a salubrious climate and luxuriant soil, embracing a tract of country capable of sustaining more human beings than were ever accommodated by any work of the kind.

"By this great highway, unborn millions will easily transport their surplus productions to the shores of the Atlantic, procure their supplies, and hold a useful and profitable intercourse with all the maritime nations of the earth.

"The expense and labor of this great undertaking, bear no proportion to its utility. Nature has kindly afforded every facility; we have all the moral and physical means within our reach and control. Let us then proceed to the work, animated by the prospect of its speedy accomplishment, and cheered with the anticipated benedictions of a grateful posterity."

1. *Ib.* 367.

At the conclusion of the speech Judge John Richardson removed the first spadeful of earth and was followed by the assembled citizens who were zealous to participate in the labors and ceremonies of this eventful occasion. One writer says:

"Thus accompanied by the acclamations of the citizens, and the discharge of a cannon, was struck the first stroke towards the construction of a work, which in its completion has united Erie with the Hudson; the West with the Atlantic; which has scattered plenty along its borders; carried refinement and civilization to the regions of the wilderness; and which will ever remain a proud and useful monument of the enlightened views of its projectors, and of the wisdom and magnanimity of the State of New York."¹

The Commissioners considered it "more just and equitable" to let small contracts, "in order that men in moderate pecuniary circumstances might be enabled to engage in the work" than by a diminution of the number of the contracts to put "it in the power of a few wealthy individuals to monopolize the whole." Accordingly there were approximately 50 separate contracts let for 58 miles of work on the summit level within the first year. Money was advanced on security to contractors before any work was done to enable them to purchase provisions and supplies for their men. Surveys of the entire route were made during the dry season of 1816 and the work commenced in the wet season of 1817, which made the work more expensive to the contractors, but for the first year it was done within the estimates, notwithstanding "the surface of the earth was beaten and drenched by heavy and frequent rains and from the melting of snow till nearly the first of June."²

Unforeseen difficulties were encountered in constructing the prism and maintaining the embankments in some parts of the route, which ran through swamps and marshy districts lower than the established level of sections of the canal, such as those through the Cayuga marshes between the Mohawk and Seneca rivers, frequently flooded by intercepting water courses, rendering such sections at

1. Hosack's Clinton, 455, 456.

2. 1 Canal Laws, 399.

times impassible. In other places hardpan, breccia, indurated clay, and stone or quicksand were encountered. In still other places rank marsh grasses, shrubbery, roots and stumps of trees obstructed the progress of work, and the contractors devised and constructed some of the apparatus and machinery which they used in grubbing, cleaning and excavating; for steam drills and shovels, steam and hydraulic dredges, steam and electric derricks, excavators, travelling derricks, cableways, transporting scows, belt-conveyor plants and construction trains now in use in barge canal construction were then unknown. The axe, spade, wheel-barrow, road-scraper, a heavy coulter-pointed plough, devised for the occasion and drawn by two yoke of oxen, which would cut roots two inches in diameter, were among the common implements in general use in the building of the original Erie, Champlain and Oswego canals.

To prevent deception and fraud in the performance of the work of excavation and construction of the embankments, the engineers were instructed to employ vigilant assistants to travel frequently over the line of the canal, inspect and report on every job and to insist on a rigid compliance with the contracts, which required the contractors to complete their contracts and have them inspected and accepted before they were entitled to payment. Monthly advance payments were made when the work was carried on in a faithful manner, but, if any deception were discovered, payments were suspended. Most of the contractors were men of high standing and financial responsibility and performed their work in an acceptable manner. A few failed to complete their contracts and their names are given in a report of the Canal Commissioners to the Legislature in the month of March, 1818, together with the reasons for such failure.

Work progressed, however, on the Erie and on the Champlain canals as expeditiously as could be expected. The plans were modified in relation to the Champlain canal in 1817 so as to make the dimensions conform to those of the Erie and thereby admit of the passage of boats from the Erie through the Champlain canal and avoid the necessity

1818

of transferring cargoes at Waterford. The dimensions of both the Erie and Champlain canal prisms were 40 feet wide at the surface of the water, 28 feet wide at the bottom of the prisms, which were to be 4 feet deep, with locks 90 feet long by 15 feet wide and with towing paths from 10 to 15 feet in width.

The commissioners decided that the increased dimensions of the Champlain canal were justified for the reason, among others, they say, that those parts of this State and of Vermont, which lie contiguous to Lake Champlain, abound in material for "masts, spars, ship-timber and lumber of all descriptions," and that all such bulky articles "may be transported through such locks in much larger quantities and of course with much more expedition than through those of small dimensions."¹

The Canal Commissioners reported to the Legislature that about nine tenths of the resident landholders between Utica and the Seneca river and fifty-six persons west of the Seneca river had made voluntary cessions of land to the State for canal purposes; and in 1819, the Holland Land Company granted 100,632 acres in the county of Cattaraugus to the State for that purpose, upon condition that

"if the contemplated inland navigation between Lake Erie and Hudson's river should not be effectually completed so as to afford a good water communication between the said lake and river, for boats of at least five tons burthen, by the 19th of August, 1842,"

then all such lands as were unsold should revert to the Holland Land Company and the unpaid purchase moneys of such lands as were sold should be accounted for and paid to the said grantors and the People of the State by the terms of the act of April 13, 1819, stipulated to pay to such grantors the fair and actual value of such lands, for which the State had received payment. All such lands as remained unsold in 1842 were to revert to the Holland Land Company.²

A half or more of the lands for the Champlain canal between Fort Edward and Whitehall was voluntarily ceded

1. *Ib.* 378.

2. *Ib.* 435-437.

by individuals to the State. Although the building of locks was both difficult and costly, their construction was well understood by the engineers, Charles C. Brodhead, Benjamin Wright, James Geddes, David Thomas and Canvass White, who visited Europe to study lock construction and returned to supervise the construction of locks on the Erie canal. It is said that he was the first to discover waterproof lime or cement which was used in hydraulic work on the canals.

X. PROBLEMS AND CONTROVERSIES.

The Commissioners were confronted with many intricate and perplexing problems. They were required to devise and supervise the building of such structures as the several aqueducts between Schenectady and Little Falls and those over Oriskany creek and the Genesee river, and several others. Their engineers may have been familiar with the construction of the Roman aqueducts of the Campania and Segovia and of the Chirk and Pont Cysylltan aqueducts described by Phillips as "among the boldest efforts of human invention in modern times." Still it required skill and courage at that time to build structures adequate to carry the prism of the original Erie canal through marshes and across rivers. The aqueduct over the Genesee river was 802 feet long, sustained by ten arches of 50 feet span each except one of 30 feet span and cost \$87,127.61.¹ Quicksands were encountered in the Cayuga marshes, and these were the occasion of much trouble to constructors, when the nine million dollar improvement was under way in 1897. New and unforeseen

1. 2 N. Y. Canal Laws, 547. The remaining principal aqueducts were those over the Mohawk, one four miles northeast of Schenectady 748 feet long, one 12 miles below Schenectady 1188 feet long "resting on twenty-six piers of well cut stone laid in water lime cement," one in Herkimer county 204 feet long over the Oriskany creek, one at Little Falls 184 feet long, said to be "one of the finest specimens of masonry on the whole line of the canal," "whose three beautiful arches carried the canal from 40 to 50 feet above the waters of the Mohawk." ("Guide to the Middle and Northern States," p. 203. The height was about 30 feet.) One over the Skaneateles outlet 100 feet long, one over the Oak Orchard creek 60 feet long, one over the Owasco outlet 120 feet long, one over Mud creek; and many other smaller aqueducts.

difficulties repeatedly confronted the canal builders as they pushed forward the work through swamps and marshes of the interior of the State. Malaria, fever and other diseases laid low laborers by the scores, and the cold winter months drove them from their work to the shelter of the fireside. The work was retarded by sickness caused by the excessive and long continued heat of the summer of 1819, during which time about a thousand men were disabled from work, between Syracuse and the Seneca river.¹ Provisions were both scanty and costly so that the healthy were none too well provided for, much less those stricken down with disease. All these increased the burdens of the Commissioners, and still they did not lose courage. After the water had been let into a section of the canal at Schenectady, it percolated through the banks and it became necessary to use courses of sheet piling in places and in other places sand was used to line the bottom and the sides to prevent leakage.

The Canal Commissioners made some changes in the route as originally laid out. They decided to proceed south of Mud creek from Palmyra to Lyons as recommended by Nathan S. Roberts to shorten the distance and save expense. They decided to follow the most northerly route surveyed by David Thomas from the Genesee river to Tonawanda creek, whose summit level was below the surface of Lake Erie, whence it would be practicable to take all the water necessary to supply the canal as far east as the Genesee river. This was the controlling factor in deciding upon that route. The summit level of the southerly route through the Holland Purchase was estimated to be 75 feet above the surface of Lake Erie, which would preclude the use of its waters for canal purposes.

The survey of Valentine Gill ran southwesterly from Rochester through the counties of Genesee and Niagara into the waters of Lake Erie south of the village of Buffalo, and the summit level on this proposed route was 94 feet above the waters of Lake Erie. This route was submitted to the Legislature in 1820, but not adopted.²

1. N. Y. Assembly Journal for 1820, 455.

2. 1 N. Y. Canal Laws, 452, 453.

The Canal Commissioners decided that the canal prism east of the Genesee river should be so constructed as to make it possible to use the Irondequoit creek as a feeder. This was subsequently found to be impracticable. The whole route was divided into three sections. The first or western section was 163 miles in length, extending from Lake Erie to the Seneca river, and was surveyed by James Geddes and William Peacock. The sub-section extending from Buffalo to the east line of the Holland Purchase was assigned to and explored by William Peacock in 1816. The sub-section extending from 11 miles up the Tonawanda creek to the Seneca river was surveyed by James Geddes. Theretofore Joseph Ellicott gave Simeon De Witt, Surveyor-General, a description of the country between the Tonawanda creek and the Genesee river and pointed out the feasibility of a route for a canal through that territory.

The middle section was 77 miles in length, from Rome to the Seneca river, and was surveyed by Benjamin Wright.

The eastern section was 97 miles in length, extending from Rome to the Hudson river, and was surveyed as far as Canajoharie creek, a distance of 71 miles and 27 chains by Charles C. Broadhead. The country from Rome to Waterford had been examined under instructions from Simeon De Witt in 1811.

Under the original survey the Canal Commissioners determined to connect the west end of the Erie canal with the waters of Lake Erie through the mouth of Buffalo. The reason for this decision is announced in their report to the Legislature under date of February 15, 1817, in the following terms:

"From their own examination, the commissioners determined that it would be expedient to connect the west end of the great canal, with the waters of Lake Erie, through the mouth of Buffalo creek. In adopting this determination, they were influenced by the following considerations: It is important to have at that end, a safe harbor, capable, without much expense, of sufficient enlargement for the accommodation of all boats and vessels, that a very extensive trade may hereafter require, to enter and exchange their lading there. The waters of Lake Erie are higher at the mouth of the

Buffalo, than they are at Bird Island, or any point farther down the Niagara, and every inch gained in elevation, will produce a large saving in the expense of excavation, throughout Lake Erie level."¹

However there was much diversity of views among the inhabitants of the villages of Black Rock and Buffalo as to the western terminal point of the canal. Engineers were at such variance as to the most desirable place to construct a connecting harbor, that the Canal Commissioners employed David Thomas of Cayuga county to make surveys of Buffalo creek and Niagara river at Bird Island and report the result to them. William Peacock, Joseph Ellicott and James Geddes had already surveyed the Buffalo creek and Black Rock territory.

One of the conditions of the donation of lands by the Holland Land Company to the State in aid of the construction of the Erie canal was that the Buffalo creek should be improved in such a manner as to provide an adequate harbor for vessels navigating Lake Erie, where their cargoes might be transferred to boats navigating the Erie canal. Accordingly an act was passed on April 10, 1818, relative to the harbor of Buffalo creek, in the county of Niagara, providing for a survey of the outlet of Buffalo creek and the submission of a plan for its improvement, so as to form a safe and commodious harbor for vessels navigating Lake Erie, together with the estimated expense thereof and directing a report to be made to the Legislature at the next session. The supervisors of the county of Niagara were required to audit and allow the expense of such survey and of the making of a map to accompany the same.

William Peacock made a survey of Buffalo creek,² which was presented to the Legislature in 1819 with a map, showing a stone pier 990 feet long, 30 feet wide at the bottom and 10 feet wide at the top and rising six feet above the surface of Lake Erie at the estimated cost of \$12,787, but if built of wood at \$10,500.³ His map was referred to by David Thomas, who afterwards surveyed Buffalo harbor.

1. *Ib.* 198.

2. 5 *Publ. Buf. Hist. Soc.*, 197.

3. *Ib.* 243.

On April 7, 1819, an act was passed authorizing the Comptroller to lend to Jonas Harrison, Ebenezer Walden, Heman B. Potter, John G. Camp, Oliver Forward, Albert H. Tracy, Ebenezer Johnson, Ebenezer F. Norton and Charles Townsend, all well-known Buffalonians of that day, the sum of \$12,000 on good bond and mortgage security on unincumbered real estate, conditioned for payment at the end of ten years with interest to commence after five years from date of said securities, and conditioned further that said money should be applied towards the construction of a harbor at the mouth of Buffalo creek on Lake Erie for the security of vessels navigating on said lake as the Canal Commissioners should direct. By the same act the canal commissioners were required to view and examine the entrance into Buffalo creek and if they were of the opinion that the same may be improved so as to render it necessary or useful as connected with the canal from Lake Erie to the tide waters of the Hudson, they should direct the manner of the improvement. It was further provided that in case the Canal Commissioners did not undertake such improvement within six months at the expense of the State, they were to notify the persons named in this act and thereupon they were authorized to go forward with the improvement under the direction of the Canal Commissioners, to receive the money from the Comptroller and to impose and collect tolls on vessels entering such harbor, under regulations approved by the commissioners. In the latter case they were also authorized to divide the expense into shares and dispose of the same and to distribute the receipts for tolls among the shareholders under rules to be approved by the commissioners.

This plan for the improvement of the Buffalo creek into a harbor was something like the system prevailing in Great Britain. There commissioners and boards are authorized by Parliament to construct harbors and to manage and control them subject to public use upon payment of tonnage duties by the owners of vessels frequenting them. All the ports of Great Britain are still managed by boards of dock or harbor commissioners. In 1905, I visited London, Edin-

burgh, Glasgow, Belfast, Dublin and Liverpool, and found their ports in an improved condition, and far superior to many other European harbors. It is not surprising that the commerce of Great Britain is world-wide and surpasses that of other nations of the continent. Credit is due to the memory of John Smeaton. He did much to improve the rivers and harbors and canals of Great Britain and gave that kingdom a start which placed it in the lead of the commercial powers of the world. The engineers who planned the artificial and improved natural waterways and harbors of this State, including the eminent engineers already mentioned of the early period, as well as General Francis V. Greene, Col. Thomas W. Symons, Hon. Edward A. Bond and other members of the Advisory Board of Canal Engineers of this later period, have rendered a great service to the people.

On February 24, 1820, the report of the surveys of the Buffalo harbor made by David Thomas and addressed to the Canal Commissioners, was presented to the Assembly. Among other things in that report, Mr. Thomas says:

"The depth of water in Buffalo creek is sufficient for a harbor. In taking soundings almost up to the ferry (which is one mile from the entrance), the least depth observed was 11 feet and this only in two places; but the common depth up the stream is from 12 to 14 feet. About 50 rods above the mouth of Little Buffalo we found 17 feet, and a few rods within that part of the entrance which is obstructed by sand, we found 19 feet. The breadth of this creek, just above Little Buffalo is full 16 rods; but 35 rods above, the breadth is only 12 rods."

He estimated the cost of a pier, which he suggested be built "in a westerly direction until a sufficient depth of water was attained and then to extend it northerly, nearly parallel to the shore," at \$4,000. He disapproved of making a harbor at Black Rock, which would necessitate the construction of a dam across Niagara river to Squaw Island, the expense of which would be sufficient to discourage the attempt; and the prevailing southwesterly winds down the river, added to the current, would render navigation difficult for sailing vessels to return from Black Rock up stream into Lake Erie. He further says: "In case of hostilities with the British, so

long as they possess the opposite shore, this harbor would be useless." The report is long and the points made by this engineer had great weight with De Witt Clinton, Benjamin Wright, Nathan S. Roberts and Canvass White, who were of the opinion "that the canal ought to be continued to and terminate in the Buffalo creek, near the mouth of the Little Buffalo creek."¹

The report of David Thomas was strongly opposed by James Geddes, who was decidedly in favor of the Black Rock project and who was familiar with the docking facilities of London. In controverting the position taken by Mr. Thomas he says:

"By the same gentleman (Mr. Thomas) information is obtained, that Buffalo creek is deep enough for a mile and one fourth in length, and average of three chains wide, making 30 acres of harbor in this place. This is not quite as large as the artificial Surport East India Dock, which with the Export Dock, amounts to 54 acres, the whole site for which was covered either with streets and houses, or with gardens. When the destinies of the western country are duly considered, says Mr. Haynes, and the riches of our State are duly appreciated, it is no visionary calculation to say, that 1,000,000 of tons annually will pass through the Western canal, in the course of a few years. What would the same enlightened calculator say to a harbor, for the emporium of all this trade, not quite so big as an artificial dock in London? And if a few years shall do this, what will time, running with an accelerated velocity, bring about, before all those now planning for posterity, shall have left the scene?"

Engineer Nathan S. Roberts, who had been continuously employed and who had a more extended personal knowledge of localities, was convinced of the superior eligibility of the Black Rock project. David S. Bates, one of the resident engineers, was also of the opinion that Black Rock was preferable to Buffalo creek. Benjamin Wright, one of the best engineers, favored Buffalo creek. The controversy between the rival ports waged fiercely and the commercial advantages of each were fully exploited.

The entire commerce at the time on the Great Lakes was limited and the vessels were small. In 1819 there were ap-

1. 2 N. Y. Canal Laws, §31.

proximately a score of American merchant vessels enrolled at ports on Lake Erie. Most of them made their eastern harbor at Black Rock in the Niagara river, which afforded shelter from the violence of the storms of the lake. Buffalo creek was sluggish and the sandbar extending across its mouth interfered with its navigability, although canoes ascended its waters for a distance of nine miles, and lake vessels at high water a mile and a half. A small shipyard was established by Capt. Asa Stannard in 1812 on Scajaquada creek, where vessels of 100 tons were built, which has continued with occasional interruptions to the present day. The firm of Bidwell & Carrick established a shipyard and dry-dock at Black Rock about that time.

The total registered tonnage of the port of Buffalo on May 17, 1818, as given by the *Buffalo Gazette*, consisted of four vessels, whose carrying capacity was 377 tons.

Capt. James Sloan says that the merchant marine of the port of Buffalo creek in May, 1820, consisted of two boats owned by Winthrop Fox that could carry a cord of stone each and one boat owned by Jonathan Olmsted that could carry a cord and a half, and a skiff owned by a Mr. Skate and a canoe owned by Mr. Meadows. A little later a yawl boat and a scow were added.¹ The tonnage of the vessels enrolled at Black Rock may have been some larger. This did not include the ownership of Buffalonians in vessels enrolled at other lake ports.

Johnson, in his "Centennial History of Erie County," says: "The mouth of the creek (Buffalo) was 60 rods north of where it is now, the stream running for that distance nearly parallel with the lake." When the harbor was first constructed the bed of the creek was straightened so that it flowed westerly into the lake. Some of the members of the Harbor Association, comprising the gentlemen named in the act of April 17, 1819, were unwilling to pledge their individual property to the State to secure the \$12,000 loan; and Samuel Wilkeson, Charles Townsend and Oliver Forward furnished the requisite security to obtain the loan. After they had expended most of the money in building a

1. 5 Puba. Buf. Hist. Soc. 233.

harbor at Buffalo creek an act was passed on April 17, 1822, limiting the amount of the loan to \$12,000, and rendering the collection of tolls, authorized by the original act, impracticable for the reason that vessels would not enter the port of Buffalo and pay tolls, when they were permitted to enter the harbor at Black Rock, for the construction of which \$12,000 had been appropriated by the State and where no tolls were imposed.¹ This advantage of Black Rock over Buffalo intensified the feeling of rivalry between the two villages and their race to secure the western terminus of the Erie canal. It culminated in 1822 at the hearing given by the Canal Commissioners, attended by De Witt Clinton, Stephen Van Rensselaer, Henry Seymour, Myron Holley and Samuel Young, at which General Peter B. Porter, who had been a Canal Commissioner from 1810 to 1816, presented the arguments in favor of Black Rock, and Samuel Wilkeson those in favor of Buffalo. This hearing was also attended by James Geddes, Benjamin Wright, David Thomas, Canvass White, and Nathan S. Roberts, canal engineers, some of whom had surveyed the sites in controversy. After a most animated discussion of the points involved and after mature deliberation on the part of the Canal Commissioners, some of whom had given long consideration to the commercial features of the two ports in relation to the western terminus, a decision was given to Buffalo creek mainly on account of its higher level whence an abundant supply of water might be taken to feed the canal and also on account of its superior adaptability for an extensive harbor to accommodate the commerce of the Great Lakes.

The western terminal matter, however, continued to be agitated for a year after the decision was made. During this time people of Buffalo became alarmed at a rumor to the effect that the Canal Commissioners had reconsidered their action and decided in favor of Black Rock as the western terminus of the Erie canal. Thereupon they circulated a subscription to raise funds "to open an uninterrupted canal navigation upon the margin of the Niagara river, on the plan proposed by David Thomas, from the point where the

1. 2 N. Y. Canal Laws, 90, 92.

line established by him will intercept Porter's Basin, to the point where it is proposed to dam the arm of the said river to Squaw Island," and secured subscriptions amounting to \$11,415, for that purpose. In addition thereto Louis Le Couteulx donated half an acre of land fronting on the canal for the same purpose. "One effect of the course adopted by the meeting at Buffalo," say the Commissioners in their annual report to the Legislature, under date of February 24, 1823, "was to postpone the ultimate decision of the harbor question for one year; and this, it was thought, would not involve any public injury, because the harbor at either place, might, notwithstanding the postponement, be completed within the two seasons yet required to complete the canal through the mountain ridge. In the meantime, the citizens of Buffalo have had the opportunity of completing their works; and the people of Black Rock, in consequence of the intimation afforded them, by the above determination, have constructed about 16 rods of pier, in the rapid waters below Bird Island, for the purpose of testing experimentally the permanency of a mole which, on their plan of a harbor, must be extended from Bird Island to Squaw Island."¹

Another effect of the decision of the Canal Commissioners was to encourage the people of Black Rock to apply to the Legislature for immediate legislation and an appropriation for the construction of a harbor at Black Rock upon a plan proposed in the report of James Geddes under date of February, 1821. They were successful as evidenced by the passage on April 17, 1822, of an act "To authorize and encourage the construction of harbors of Buffalo creek and Black Rock," known as Chapter 251 of the Laws of 1822. By this act there was appropriated \$12,000 for a harbor at Black Rock, and the Canal Commissioners entered into a contract in 1822, with Peter B. Porter and Sheldon Thompson, who were authorized so to do by the citizens of Black Rock, for the construction of 530 rods of mole or pier to connect Bird Island and Squaw Island and 30 rods to unite the latter island with the main land. The pier was to be 16 feet in height and 18 feet in width. They were also to

1. *Ib.* 96.

construct 260 rods of embankment along the eastern shore of Squaw Island, which was to be 30 feet broad at the base and 6 feet at the top. They were also to construct a tow-path two miles and 27 chains in length on the easterly side of the harbor and a lock between the harbor and the river. The contract price for this work was \$83,819, which included the Black Rock appropriation of \$12,000. As the pier was constructed there was some apprehension that it would be carried away by the storms of Lake Erie or by the fields of floating ice in the spring-time,¹ which might, in the language of Marlow,

"Open an entrance for the wasteful sea,
Whose billows, beating the resistless banks,
Shall overflow it with their refluence."²

After its construction the Bird Island pier was damaged on two or more occasions and then repaired, and it has now withstood for nearly a century and will form the outer pier of the improved Black Rock harbor now being constructed by the United States Government.

The harbor controversy was set at rest in 1823 when "the canal line from Little Buffalo creek to the upper end of the proposed Black Rock harbor, being nearly two miles in extent," was placed under contract in accordance with the unanimous opinion of the canal engineers, Benjamin Wright, David Thomas, Nathan S. Roberts and Canvass White, "that the canal ought to be continued to and terminate in Buffalo creek, near the mouth of Little Buffalo creek."³ This conclusion was a logical result of the long controversy of the two villages which had divided engineers and embroiled canal advocates within and without the Legislature. The waters of the Niagara river in the vicinity of Bird Island and Black Rock harbor were shallow and rapid and rendered their navigation by vessels of moderate draft difficult and dangerous. This was known to the Canal Commissioners, who wisely planned for a much larger har-

1. *Ib.* 150-159.

2. Marlow's "Jew of Malta."

3. 2 N. Y. Canal Laws, 96, 531.

bor than it was possible to build at Black Rock. Shortly after the completion of the Erie canal, Black Rock harbor began to lose and Buffalo continued to gain in commerce. This was in part due to canal traffic and in part to the superior harbor facilities of the latter port. When the city charter was revised in 1853, Black Rock and its harbor became a part of Buffalo and their interests thereafter were in common.¹

The harbor of Buffalo is one of the largest and most commodious on the Great Lakes. Its growth has been unprecedented. It has far exceeded the most extravagant predictions of Judge Samuel Wilkeson, DeWitt Clinton and other Buffalo creek advocates. In 1907, the lake and canal tonnage of the port of Buffalo was 16,601,697 tons, which gave it the fifth position in rank of the largest commercial ports of the world. "As Duluth is the logical shipping and receiving port of the West, so is Buffalo the great receiving and distributing port of the East."² There were received in 1880 at the port of Buffalo 105,133,009 bushels of grain; in the year 1890, 91,994,680 bushels; in the year 1900, 157,655,969 bushels and in the year 1907, 132,438,798 bushels.

In the year 1898, there were received at the port of Buffalo 221,383,945 bushels. No other port in the world is equipped to handle such a vast quantity of grain in a single season of seven months of open navigation. In 1907 one of the large lake freighters, owned by the Weston Transit Company of Tonawanda, the LeGrand S. DeGraff, brought into the port of Buffalo 421,161 bushels of wheat, weighing 12,659 tons, which is undoubtedly the largest single cargo of grain ever transported over water. The Alexandrian grain ships, whose approach around the promontory of Surrentum was signaled by the running up of topsails and the proclamation of a holiday, in which Roman senators and other officials, and the population far and near, united in joyous ac-

1. For a general narrative of the history of Buffalo harbor (to 1902), by Major (now Colonel) Thos. W. Symons and John C. Quintus, see 5 *Publ. Buf. Hist. Soc.*, 239-285.

2. J. O. Curwood in *Putnam's Magazine*, Sept. 1908.

clamations at the port of Puteoli, carried no such large cargoes, although such as they did carry were so necessary for the support of the inhabitants that their vessels were accompanied by an escort of war galleys and hailed as "auspicious" and "sacred."

May the time never come when the needs of our population will be such as to make this nation dependent on any other for the necessities of life. The enormous traffic of cereals, flour, rice and other edible commodities over the waterways of the world is such a distribution of food stuffs as to supply the wants of millions of people out of reach of railway transportation, as may be judged from the following facts:

The Yangtse river, navigable for 680 miles from the sea for ocean-going steamers and for ordinary steamers 370 miles farther, and for junks 440 miles still farther up its channel and for small river craft, 500 miles higher still, aggregating 2,000 miles of navigable waters, is the great artery of commerce and conveyor of life-sustaining products for millions of Chinese. The Yellow river, navigable in sections by thousands of river boats; the Wang-poo, the Han, the Si-Kiang or West river, the Huai-Ho, the Pei or Canton river; and the Grand canal, carry millions of tons of traffic annually to and from the densely populated portions of that empire.

The water-borne commerce over the waterways of European Russia in 1897, as given by Major F. A. Mahan of the Corps of Engineers of the United States Army, was 27,800,000 tons, of which 52 per cent. was in the basin of the Volga, 15 per cent. in the basin of the Neva, 12 per cent. in two parts of the Dnieper, 6 per cent. in that of West Dwina, 5 per cent. in that of the Niemen, 3 per cent. for the North Dwina and the Don, 1½ per cent. for the Bug, 1 per cent. for the Narova and 1 per cent. for all other streams. Consul Heingartner of Riga reported in 1907 that the Russian Government was planning to construct a canal from the Baltic to the Black sea and to intercept some of its rivers which together would increase its waterways 1525 miles in length at an estimated cost of \$130,000,000.

In 1901 there were 7397 miles of canals and canalized rivers in France, which cost \$329,258,000. The tonnage over these in 1906, aggregated 33,739,302 tons. Austria-Hungary has approximately 1500 miles of canals and 2500 miles of navigable rivers. Belgium has 1350 miles of navigable waterways, the Netherlands 1907 miles and Germany 1709 miles of canals and 1515 miles of canalized rivers. In 1900 the tonnage of the Rhine was 9,285,000 kilometric tons, that of the Elbe 4,195,000 kilometric tons and that of the Oder 1,603,000 kilometric tons. Through the great Rathenow lock, whose dimensions are 210 meters in length and 9.6 meters in width, built recently, there passed in the year 1900 from the Elbe 8,915 vessels, carrying 1,500,000 tons and to the Elbe 8,363 vessels carrying 585,000 tons. There were locked through the Brandenburg lock in 1900 from the Elbe 17,900 vessels carrying 2,458,000 tons and to the Elbe 17,465 vessels carrying 1,062,000 tons. This is some indication of the extensive commerce over the waterways of Germany, whose improvement is now going forward under the supervision of commissioners and Dr. Leo Sympher, "*Geheimer Oberbauerrat*," of Berlin, concerning whom I speak later in this paper.¹

In his "Die Entwicklung Der Preussischen Wasserstrassen" Dr. Leo Sympher (p. 189) says: "Ein Vergleich beider Zusammenstellungen ergibt Folgendes:

"1. Die Transportleistung der Wasserstrassen hat sich in 25 Jahren von 2,900,000,000 auf 11,500,000,000 Tonnenkilometer erhöht, ohne dass die Länge der wirklich befahrenen Wasserstrassen wesentlich zugenommen hätte. Dagegen stieg bei den Eisenbahnen, deren Länge von 26,500 km im Jahre 1875 auf 49,600 km im Jahre 1900 zunahm, die Güterbewegung in demselben Zeitraum von 10,900 auf 36,900 Millionen Tonnenkilometer.

"2. Von dem Gesamtgüterverkehr Deutschlands, der im Jahre 1875 13,800 Millionen und 1900 48,400 Millionen Tonnenkilometern betrug, entfielen auf die Eisenbahnen 1875, 79 und 1900, 76 vom Hundert, auf die Wasserstrassen im ersten Jahre 21 und im letzten Jahre 24 vom Hundert."

Translation: "A comparison of the two methods of transportation: The transportation over the waterways has increased in twenty-five years from 2,900,000,000 to 11,500,000,000 kilometric tons without any increase in the length of navigable waterways; while the unit length of railroads has been extended from 26,500 km. in the year 1875 to 49,600 km. in 1900. The freight carried in that time increased from 10,900 to 36,900 million kilometric tons.

"Of the total tonnage of freight carried in Germany, which amounted to 13,800 millions ton kilometers in 1875 and in 1900 to 48,400 millions ton kilometers, 79 per cent. was moved by rail in 1875 and in 1900 76 per cent., and there was transported by water in 1875 21 per cent. and in 1900 24 per cent."

The commission appointed by the German Government to decide upon the dimensions of the Rhine-Herne canal reported in December, 1907, adversely to the proposed increase of the locks from 10 to 12 meters in width to conform to the dimensions of the Rhine-Weser canal as regulated by a law enacted in April, 1905. This increase would have permitted the navigation of the Rhine-Herne canal by boats 80 meters long and 9 meters wide, with a draft of $1\frac{3}{4}$ meters, carrying 900 tons, or by those with a draft of 2 meters, carrying 1,000 tons; whereas boats 65 meters long and 8 meters wide carry but 600 tons. Recently boats have been built 67 meters long, 8.2-10 meters wide, with a draft of 2 meters, carrying 800 tons, and others with a draft of $2\frac{3}{4}$ meters carrying 900 tons. The dimensions of the locks on the Dortmund-Ems canal are 85 meters long, 12 meters wide and from $3\frac{1}{2}$ to 4 meters in depth, which are substantially the dimensions of the locks in the new barge canals.

No government has given more intelligent consideration to waterways than has Germany under such eminent engineers as Dr. Leo Sympher, of Berlin, whom I had the pleasure of meeting in Berlin in June, 1905, and with whom I have since been in correspondence in relation to problems involved in canal construction. Most of these problems have already been scientifically solved in Germany. The topography of that country readily admits of waterway construction from Breslau, Posen and Bromberg on the east to Strasburg, Mannheim, Dortmund and Bremen on the west; and nearly every question in engineering, in lock construction, in hydraulic and electrically operated locks, in the rectification of river courses and their canalization, in steam and electric propulsion of vessels and in tractive resistance, the subject of extensive experiments under Herr R. Haack as well as under C. V. Suppau of Austria and F. B. De Mas, Minister of Public Works of France, has been studied in a thoroughly scientific spirit and practically solved.

In 1905 I inspected the Teltow canal, which connects the river Spree with the Havel, south of Berlin, to relieve the congestion of vessels in that city, and found it installed

with a modern electric equipment for hauling vessels along its course, which was considered a financial success on account of the immense traffic, whereas such an equipment might not be a financial success along greater distances with less traffic. Dr. Sympher expressed to me his disapproval of the scheme known as "the electric mule" as impractical as a means of canal propulsion.

The German waterways intercommunicate from the Oder, Spree, Havel and Elbe on the east with the Main, Weser and Rhine on the west, and it is possible to traverse nearly the entire empire in boats of 500 tons capacity. The hundreds of vessels on the Spree, the Oder, the Havel and on the communicating canals in and about Berlin, Potsdam and Spandau form picturesque flotillas and swell the commerce and intensify the life of the German capital, whose tonnage thus far wholly over interior waterways (the Stettin ship-canal not having been completed), exceeds 6,000,000 tons annually, or nearly one-third of that of the foreign commerce of the port of New York.

Most of the countries above named are making or planning extensions and improvements in their respective systems of waterways. Some of these will be hereinafter described in this paper. The statesmen of these foreign countries realize their importance and, reflecting public sentiment as they do, are likely to suffer nothing to be done that would tend to their abandonment.

The possibilities of inland water navigation in the United States are hardly less extensive. There are approximately 25,000 miles of navigable rivers, 2,500 miles of canals, and several thousand miles of sounds and bays, which might be brought into navigable communication by the construction of connecting canals. The importance of this is shown by the traffic over the waters of the Chesapeake Bay, which during the fiscal year ending on June 30, 1907, amounted to 2,000,000 bushels of wheat, in addition to large quantities of other agricultural products.

The traffic over the waterways of the United States, as shown in the census reports of the year 1906, was 265,546,845 net tons, including harbor and coastwise traffic. Of this

vast tonnage there were carried on the Great Lakes and the St. Lawrence river 75,610,690 tons, and on the Mississippi river and its tributaries, 27,856,641 tons, and on other inland waterways 3,944,655 tons. There were transported on the Atlantic coast and the Gulf of Mexico, 140,512,043 tons, and on the Pacific coast, including Alaska, 17,622,816 tons. Some of the principal commodities transported were: Coal, aggregating 49,109,605 tons; iron ore, 41,524,102 tons; petroleum and other oils, 30,029,513 tons; stone, sand, etc., 14,659,972 tons; lumber, 7,111,144 tons; grain, 5,792,612 tons; cement, brick and lime, 5,165,051 tons.

This enormous traffic was carried on in 37,321 vessels, costing \$507,973,121, employing 140,929 men, the income of which vessels was \$294,854,532, and the wages paid was \$71,636,521. There were carried in addition to the freight 366,825,663 passengers over such waterways.

The importance and magnitude of transportation by water so impressed the President and Congress of the United States, that the President was authorized and did appoint, on March 14, 1907, a commission to consider the question of the control of the navigable waterways of the United States with a view to their conservation and improvement. That commission made its preliminary report to the President and the Congress of the United States on February 3, 1908, in which, among other things, they recommended "that the Congress be asked to make suitable provision for improving the inland waterways of the United States at a rate commensurate with the needs of the people as determined by competent authority, and the sum of \$50,000 was appropriated by Congress for that purpose.

XI. RESOURCES AND REVENUES.

The builders of the Erie and Champlain canals were fully alive to the importance commercially of adequate and economical transportation facilities in this State and surmounted all difficulties as best they could without arousing unnecessary opposition or becoming hopelessly involved in personal

animosities or in local jealousies. They knew that they were building for the future as well as their own generation. They subordinated their personal differences for the commonweal and went forward with such light as they had.

The engineering problems were not the only ones that troubled them. It was necessary to have available money in large amounts to meet payments for canal construction as the work went on. It became necessary to formulate a fiscal policy that would yield adequate revenue; and in addition to that act of 1817, other measures were devised for this purpose.

By the provisions of an act passed April 21, 1818, entitled "An act to improve the funds and to provide for the redemption of the funded debt of this State," the Comptroller was authorized to sell the three per cent. stock of the United States owned by the people of this State and to apply the proceeds to the reduction of the funded debt of the State, bearing seven per cent. interest. By said act he was also authorized to borrow on the credit of the State a million dollars at six per cent., and for that purpose he opened subscriptions for such loan and to issue certificates to subscribers thereto, bearing six per cent. interest, payable quarterly, and the principal to be irredeemable until January 1, 1823; but at the request of the holders redeemable within five years thereafter, and a tax of one mill on each dollar of the property within the State was to be annually imposed to discharge the then existing debt of the State.

The act further provides an elaborate scheme for issuing State certificates, purporting in substance as follows: "That the people of the State of New York, owe to the person or body corporate to be named therein, the sum therein expressed, bearing an interest at the rate of six per centum per annum, payable quarterly yearly, on the first days of the months of January, April, July and October, and the principal to be irredeemable until the first day of January, in the year one thousand eight hundred and twenty-three," and for the required transfer of such certificates a list of the holders of which was transmitted annually to the Comptroller. The Comptroller was also authorized to apply surplus

moneys in the Treasury to the purchase of such stock certificates at or below par or nominal value.

The aggregate amount of the outstanding State canal debt in the year 1823, was \$5,899,500, or $2\frac{2}{10}$ per cent. of the assessed valuation of the property of the State, and in the year 1826 it was \$7,737,770, or $2\frac{5}{10}$ per cent. of the assessed valuation of the property of the State.

In 1844 it was \$20,713,905, or $3\frac{8}{10}$ per cent. of the assessed valuation of the property of the State, the largest per cent. in the history of the State and a much larger per cent. than that to be produced by one hundred and one million outstanding canal bonds. That will not exceed one per cent. of the assessed valuation of the property of the State.

In the annual address of Governor Clinton to the Legislature of 1819, he reviews the progress of canal construction to that date and says that before the close of the next season 23 miles of canal, between Whitehall and Fort Edward, will have been completed and that 94 miles of the middle section of the western canal will have been completed, and he estimates that the whole canal system will be completed within six years from that time. The predictions were fulfilled. He called attention to the fact that the work was being carried forward within the estimates and that sections of the canal would be completed, so that they could be put into operation and a revenue derived from the traffic thereon.

He stated that the existing charges on a ton of commodities from Buffalo to Albany by land was \$100 and to Montreal, principally by water, was but \$25; "hence it is obvious," he said, "that the whole of the vast region to the west of that flourishing village (Buffalo) and the greater part of the extensive and fertile country east of it, are prevented from sending their productions to our commercial emporium, and that they must either resort to the precarious markets of Canada, or to places more distant, less accessible, or less advantageous. When the great western canal is finished, the expense of transportation from Buffalo to Albany will not exceed ten dollars a ton. . . . If half a million of tons are, at the present period, transported on the waters of the Hudson river, it is reasonable to suppose that the time

is not distant when the commodities conveyed on the canals will be equal in amount. A small transit duty will consequently produce an immense income, applicable to the speedy extinguishment of the debt contracted for the canals, and to the prosecution of other important improvements. In these works, then, we behold the operation of a powerful engine of finance, and of a prolific source of revenue. . . . I look forward with pleasure to the speedy arrival of the time, when the State will be able to improve the navigation of the Susquehannah, the Allegheny, the Genesee and the St. Lawrence—to assist in connecting the waters of the Great Lakes and of the Mississippi—to form a junction between the western canal and Lake Ontario, by the Oswego river, and to promote the laudable intention of Pennsylvania to unite the Seneca lake with the head-waters of the Susquehannah.”

The reduction of the expense of the transportation of a ton of merchandise from Buffalo to Albany from \$100, the then existing rate, to \$10, the predicted reduced rate, is to us of the present day in view of what followed, an interesting matter. Such were some of the benefits which the people of that day expected to derive from the construction of the Erie canal, and appeared to Governor Clinton to be one of the controlling reasons justifying the expenditure of the money necessary to accomplish that result. This is still more interesting to us in view of the further reduced rate, as predicted by Colonel Thomas W. Symons, of transportation of a ton over the new barge canal from Buffalo to tidewater, at 26 cents, or at the ratio of 52/100 of a mill per ton per mile.

The predictions of Governor Clinton in regard to the tonnage were fulfilled within a very few years and that tonnage continued to increase over the enlarged and lateral canals until the year 1872, when the aggregate tonnage on all the canals of the State was 6,673,370 tons, which paid in tolls to the State that year \$3,720,411 and in freights \$7,576,300, or an aggregate revenue to the State of \$10,648,711, —more than the entire cost of the original Erie, Champlain and Oswego canals.

The revenues derived from the operation of completed sections of the Erie aggregated as follows:

In 1820 the tolls on the Erie were.....\$	5,437.34
In 1821 the tolls on the Erie were.....	23,000.00
In 1822 the tolls on the Erie were.....	57,160.39
In 1823 the tolls on the Erie were.....	105,037.35
In 1824 the tolls on the Erie were.....	294,546.62
In 1825 the tolls on the Erie were.....	492,664.23

These receipts were a substantial gain to the then limited resources of the State and materially aided the Canal Commissioners in carrying forward the work without resorting to sources of revenue other than those provided for in the original and supplemental acts authorizing and directing the prosecution of canal construction.

In 1819 the Assembly made formal answer to Governor Clinton's speech through the chairman of the committee, Mr. J. V. N. Yates, in which among other things the committee reported:

"The benefits resulting from an extended inland navigation, successfully conducted, are incalculably great. Whether they are considered in a moral, political, commercial or agricultural point of view, they are alike essential to our national character and glory. We rejoice, therefore, to learn, that those great works, begun and continued under the most favorable auspices, promise to realize our warmest expectations; and, it will be an object of the first importance, to hasten their complete execution by every suitable means consistent with the ability of the State. . . . Future generations may, perhaps, form some estimate of their value, and prize them among the noblest monuments of human skill and perseverance; and, when the fugitive scenes of the present times shall have long since perished in oblivion, these works will remain to declare the glory of our country, and to pronounce the best eulogium upon the memory of their founders and patrons."

In the Senate a somewhat similar response was given to the Governor's speech through the chairman of the committee, Henry Yates, Jr. Both of these clearly reveal the awakened interest in the construction of internal waterways through the State and the broad comprehensive view entertained by those identified with the project.

On April 7, 1819, the Legislature passed an act "Concerning the Great Western and Northern Canals," authorizing the "commissioners of the canal fund, in addition to the sums which they are already authorized to borrow, to borrow, from time to time, monies, on the credit of the State, at a rate not exceeding six per centum per annum, and not exceeding in any one year a sum, which together with the net income of the canal fund, and with the sums which they are already authorized to borrow, shall amount to six hundred thousand dollars; for which monies so to be borrowed, certificates of stock shall be issued in the manner directed in and by the act entitled 'an act to improve the funds, and to provide for the redemption of the funded debt of this State,' payable at such time or times as may be determined by the said board, out of the said canal fund, and to pay to the canal commissioners the monies so to be borrowed."¹

By the second section of said act, the Canal Commissioners were authorized and empowered,

"in behalf of the State and on the credit of the canal fund, to proceed to open communications by canals and locks, between the Seneca river and Lake Erie; between such point on the Mohawk river where the middle section of the great western canal shall terminate and the Hudson river; between Fort Edward and the navigable waters of the Hudson river, and between the great western canal, and the salt works in the village of Salina; to receive, from time to time, from the commissioners of the canal fund, such monies as may be necessary for and applicable to the objects hereby contemplated; to cause the same to be expended in the most economical and prudent manner in all such works as may be proper to make the said canals and locks, and on completing any of the works contemplated by this act; to establish reasonable tolls, and adopt all measures necessary for the collection and payment thereof to the commissioners of the canal fund."

By the third section of said act, the Canal Commissioners were empowered to take possession of lands and a plan for condemnation proceedings was provided similar to that in the act of 1817.

The annual reports of the Canal Commissioners to the Legislature throw much light on the conditions existing in

1. 1 N. Y. Canal Laws, 433.

the State during the period of canal construction, extending from July 4, 1817, to October 26, 1825. These form an essential part of the history of the State. The territory, through which the Erie and Champlain canals were constructed, comprises some of the fairest portions of the State, where settlements were being made by the heads of its leading families. The work was extensive and required large forces of laborers, and involved an expenditure of large sums of money on the various sections under construction; and in one way or another the work was brought in touch with a majority of the inhabitants of the State. Towns and villages began to spring into being along the routes of the Erie and Champlain canals, and as fast as the various sections were completed, celebrations were held and traffic was begun over them.

Governor Clinton, in his speech to the Legislature of 1820, said:

"In less than two years and five months one hundred and twenty miles of artificial navigation have been finished and thus the physical as well as the financial practicability of uniting the waters of the western and northern lakes with the Atlantic ocean has been established beyond the reach of doubt or cavil. The efforts of direct hostility to the system of internal improvements will be feeble. . . . The expense of carrying a barrel of flour by land to Albany from the country about Cayuga lake was more than twice as much as the exportation of one from New York to Liverpool."¹

On April 13, 1820, the Legislature passed an act, entitled, "For the maintenance and protection of the Erie and Champlain canals, and the works connected therewith," whereby rules and regulations were authorized for the control of boats navigating such waterways, and providing against obstructions being placed therein and regulating the rate of speed; providing for inspection, weighing, and payment of tolls to collectors, and prescribing rates of tolls and general supervision and superintendence of such waterways.

In the report of the Canal Commissioners to the Legislature, under date of March 12, 1821, may be found a state-

1. *Ib.* 437-439.

ment of the rates of toll charged and the sums collected on the completed sections of the canal. In this same report, in speaking of the services rendered by the engineers, they say :

"In looking back to the numerous difficulties, and responsibilities, some of them of an aspect the most disheartening, which surrounded the canals, especially in their commencement, we feel compelled, by common justice, to commend the aid, which has been, at all times, afforded by our engineers. In the selection of all the persons, who are now employed by us, under this character, we have been eminently fortunate. But to the Hon. Benjamin Wright and James Geddes, the State is mostly indebted. Possessing much local information, competent science, long experience in many kinds of business bearing some analogy to canal operations, and well established characters for industry and fidelity, these gentlemen have rendered the most essential services, in all the duties of their department. They were first appointed engineers; they have unceasingly, and with improving fitness, devoted their best faculties to the great cause in which they were engaged. And they have hitherto been found equal to the high trusts confided to them."

They further state in this report that :

"The State has now been engaged, nearly four years, in the actual construction of the Erie and Champlain canals. And the success of her efforts has been, at least, equal to the expectation of the most ardent advocates of these measures. This success could not have been attained, without care, vigilance, discretion and energy, in the complicated and arduous labors, of which it is the fruit. And these labors could not have been performed, without the support of a wise foresight and just liberality, in several successive legislatures. To us, it appears, that these legislatures have afforded a spectacle most animating, encouraging, and delightful, in reference to the sagacity of the people to understand, and their wisdom to provide for, their most substantial interests. They exhibit the most impressive example, which the United States have yet produced, since the adoption of the Federal Constitution, of the beneficent effects of free government, upon the character of a community. They are intimately connected with the best hopes of the republic. Rising above all fugitive and partial interests, and with a full detail of the costs of these works before them, the immediate representatives of the people, have so clearly discerned the benefits which they would introduce, as to apply to them from year to year, a greater proportion of their funds than

is sufficient to defray the ordinary expenses of their State government.”¹

In the convention of 1821 the canals of this State received their first constitutional consideration. Among the questions discussed was that relating to tolls. Chancellor Kent, whose vote was the decisive one in Council of Revision when the original canal law was approved in 1817, said (as reported in abstract) :

“The rates and duties were now very low, and they ought to be pledged as they now stand, if we meant to make a sure and efficient pledge to the public creditors. The canal undertaking was an immense one, and would create, before it was completed, an enormous State debt, and it was essential to our credit, and prosperity, and character, that the debt should be funded on the most solid basis, and not left to the future pleasure of the Legislature. This State has committed itself so far in the prosecution of the work, that it cannot recede, and must go forward and complete it, and unless we now permanently, by constitutional provision, appropriate these funds to the redemption of the debt, which was already created, and which should hereafter be incurred, it were deeply to be regretted that the subject was ever brought forward in the convention. It was politic and honest to give such a satisfactory pledge of our public faith and ability. We should most materially wound our credit, and impair our ability to proceed, if we now withheld that assurance from the creditors. No fund could be more justly appropriated, since the debt arose out of the very subject of the canals and the burden would operate equally and fairly upon every part of the State, since the tolls and duties would fall upon the consumers of the products conveyed to and fro upon the canals, and that consumption would generally be in a ratio to the population.”²

Chancellor Kent and others prevailed and there was inserted in the Constitution of 1821, Section 10 of Article 7, which, among other things, continued the imposition of tolls, the duties on goods sold at auction, duties on salt, the annual tax of \$5,000 levied on steamboats, and provided that all these except prior appropriations therefrom should be applied to the payment of interest and to reimburse the prin-

1. 2 N. Y. Canal Laws, 22, 23.

2. “Reports of the Proceedings and Debates of the Convention of 1821 . . .,” 565.

principal borrowed to complete navigable communications between the great western and northern lakes and the Atlantic ocean and until the complete payment of such principal and interest be made; and in substance, that the Legislature should never sell or dispose of said navigable communications, or any part or section thereof, but the same should be and remain the property of the State. Chancellor Kent and others thus early in this State provided against such a disposal of its canals as occurred in Pennsylvania through which that commonwealth lost its canals to its railway corporations.

XII. FURTHER DEVELOPMENT—POLITICAL PHASES.

At the opening of each session of the Legislature during the period of canal construction, the Governor then in office addressed himself, among other things, to the progress being made and to various phases of the work which he considered required special consideration. In addition to this the Canal Commissioners made their annual report to the Legislature in which they reviewed the progress of the work during the preceding year and made special recommendations as to matters demanding additional legislation. These reports form a comprehensive history of canal construction at that period and were examined with care and formally reported upon by the canal committees of the two branches of the Legislature, together with proposed legislation necessary to carry into effect the recommendations of the Canal Commissioners. As the work neared completion, outlying communities became interested in canal construction and frequently petitioned the Legislature that additional powers be conferred upon the commissioners to take into consideration and report upon lateral waterways, with a view of bringing them into navigable communication with the trunk canals. The impetus given to business along the Erie and Champlain canals as soon as portions of them were open to navigation was such that communities all over the State were eager for the extension of the artificial waterways to the remote sections of the State.

In 1821, the Ontario Canal Company was incorporated for the purpose of constructing a canal from the Canandaigua Lake to the Erie canal.

On February 28, 1822, an act was passed "for lowering the Onondaga Lake, and draining the swamp and marsh lands in the town of Salina," to afford boat communication between that lake and Seneca river, which empties into the Oswego river, for the improvement of which latter river an appropriation had theretofore been made.

On April 5, 1823, an act was passed authorizing the construction of a canal basin at Albany, and the same year the Niagara Canal Company was incorporated.

On April 22, 1823, an act was passed directing the canal commissioners to cause "a survey to be made, by one of the engineers in their employ, of the Oswego river, from the head of the Falls to Lake Ontario, and to make a report of the same, and of the probable expense of completing the canal," to the next session of the Legislature.

On April 23, 1823, an act was passed "to incorporate the Oswego canal company," and the Canal Commissioners were authorized and empowered to enter upon the property of said company and "make all necessary alterations that by them shall be deemed advisable; to take and make use of the waters therefrom, for the use and purposes of filling and supplying all locks that may be constructed to connect the said canal with Lake Ontario; and the said canal shall thereafter become the property of this State, without any payment or compensation whatever to said company: *Provided however*, That the right to all the surplus waters of said canal, shall be vested in the company hereby incorporated, and all persons legally claiming under them; and that they shall be permitted to take, make use of, and enjoy, the surplus waters of said canal, not necessary for filling or supplying the locks that may be erected by the said canal commissioners."¹

In their report in 1824, the Canal Commissioners, in speaking of the work between Schenectady and Albany, say:

1. 2 N. Y. Canal Laws, 146, 147.

"On this part of the canal are two stupendous aqueducts across the Mohawk, whose aggregate length, exclusive of the wings, is eighteen hundred and ninety-two feet. And although it was feared by some, that they would not be able to resist the impetus of the ice and current, in the breaking up of the river, by winter freshets; yet they have already been twice subjected to the hazard of such an occurrence, without exhibiting the least appearance of injury or damage. . . .

"Between Schenectady and Albany are 29 locks, including two at the side cut opposite the city of Troy, most of which were completed during the last season, and it is confidently believed that some of them, for beauty of materials, elegance of workmanship, and symmetry of form, will compare with any locks in the world. . . .

"The work on that part of the eastern section, which is confined within the narrow valley of the Mohawk, has been obstructed with a greater complication of difficulties than can be found in any part of the canal. . . . These shores are frequently intersected with steep gullies, which seem to have been excavated by mountain torrents. It was necessary sometimes to project the line along the face of steep banks, and in several places, upon the sides of ledges and cliffs. . . . Where the canal occupies the bed of the river, the outer side of the bank is surmounted by enormous slope walls to protect it from abrasion.

"None but those who had examined the line previous to the commencement of the work; who had seen the rude and undulating surface which it traversed, the rocks which were to be blasted, the irregular ledges filled with chasms and fissures which were to form the sides and basis of a water-tight canal; the spongy swamps, and gravel beds, and quick-sands, which were to be made impervious to water; and in short, the huge masses of rough materials, which, with immense labor, were to be reduced to symmetry and form, can duly appreciate the effort which it has required to surmount these various obstacles."

On April 5, 1824, an act was passed "relative to the draining of the Cayuga marshes, and for other purposes," and it was made the duty of the Canal Commissioners, and they were directed

"to examine into the condition of the Seneca valley from the Onondaga outlet, or Jack's reef, to the Cayuga lake, and to take measurements, soundings and levels, with a view to reclaim the marshes, commonly called the Cayuga marshes; also, to ascertain the practi-

cability of draining and reclaiming the marshes adjoining the Seneca and Cayuga lakes, respectively; and, also, of examining into the condition of the works erected and constructed upon the Seneca outlet and to take levels and measure distances along or near the outlet, with a view to the improvement of the navigation from the Erie canal, at Montezuma, to the Seneca lake, at or near Geneva; and that the said engineer be, and he is hereby required to report their proceedings with all convenient speed to the Legislature, setting forth what will be the most eligible mode, the probable expense, and the consequent advantages of the proposed improvements, and the effect such improvements would have on the Erie canal.”¹

On April 10, 1824, the Canal Commissioners were “authorized and required to cause a survey to be made by one or more of the engineers in their employ, of the most practicable route for a canal from the foot of sloop and schooner navigation of the river St. Lawrence, in the county of St. Lawrence, to Lake Champlain, together with estimates of the expense, as nearly as the same can be made, of constructing a canal between the places aforesaid”; and report to the Legislature at its next session.²

On April 12, 1824, the Canal Commissioners were directed “to cause Grand Island, in the Niagara river, to be surveyed and divided into lots not exceeding two hundred acres each,” with a view of selling the same.

In November, 1824, Mr. James Tallmadge of Dutchess county, offered a resolution in the Assembly, which was unanimously adopted by that body and then by the Senate, requiring the United States Senators and members of Congress from New York to use their utmost endeavors to prevent the exaction of tonnage duties on boats navigating the canals of this State, which was attempted under the act of Congress passed on February 18, 1793, providing for the enrollment of and imposition of tonnage duties on vessels in the coastwise trade of the United States. He supported his resolution in an able speech, in which he called attention to the fact that tonnage duties were not imposed on boats navigating in the Middlesex, James river or Dismal Swamp

1. *Ib.* 227.

2. *Ib.* 228.

canals, and there was no justice in imposing such burden upon the commerce of the New York canals.

On November 26, 1824, an act was passed to connect the Erie canal with the waters of Lake Ontario; and by an act passed on April 20, 1825, the commissioners of the canal fund were authorized to borrow \$160,000, and to apply other revenues to the construction thereof, provided that the whole sum did not exceed \$227,000, and it was to be known as the Oswego canal. It was 38 miles long and had 18 locks 90 feet long and 15 wide and cost \$565,437 and was completed on December 10, 1828.

The preliminary survey for the Champlain canal was made by Col. Lewis Garin, who reported two places on the Hudson river whence a canal might be constructed to Lake Champlain. One of these was near the mouth of Moses Kill, and following the channel of that stream and Dead Creek reach the summit level, whence it was possible to reach the channel of Wood creek and proceed to Whitehall; the other point of departure from the Hudson was at the mouth of Fort Edward creek and the course was along the valley of that creek to the summit level, and thence down to Wood creek to Whitehall. This route, which was finally chosen, was originally proposed by General Philip Schuyler and the other commissioners appointed by chapter 237 of the Laws of 1816, the same year that the Hudson and Mohawk Lock Navigation Company was incorporated with a capital stock of half a million dollars. In 1817 Mr. James Geddes re-examined the Champlain canal route and made a survey of the territory between Whitehall and Fort Edward.¹

By the second section of an act, passed on April 7, 1819, the Canal Commissioners were authorized and empowered to proceed to open the navigation by canals and locks between Fort Edward and the navigable waters of the Hudson river.

The contract for the first section from Whitehall for five miles south was let to Messrs. Melancthon Wheeler and Ezra Smith in 1817. Some difficulty was found in obtain-

1. 1 N. Y. Canal Laws, 377.

ing water for a summit level and it was proposed that a feeder might be brought from Lake George or from the Hudson river, and it was ascertained that one might easily be made from the Halfway brook, which was deemed to be the principal source of supply for the summit level. When the summit level was constructed in 1819, several springs were intercepted which supplied the water for the level without the construction of any other feeder.

In the report of the Canal Commissioners to the Legislature, under date of February 18, 1820, they say :

"During the last season the works on the Champlain Canal have been prosecuted with zeal and activity, by the several contractors to whom they were committed. The locks, the waste weirs, the culverts, and the remaining parts of the excavation and embankment, have been so far completed as to render the canal fit for navigation. On admitting the water in December last, it was ascertained that both levels are perfectly correct."

The engineers were troubled to devise a method of constructing a feeder to the summit level in order to take water from Baker's falls, but a contract was finally entered into for the erection of a dam and excavation of a navigable feeder and the construction of a guard lock to prevent the irruption of the water into the river.

By the provisions of section 3 of the act passed April 12, 1820, entitled, "An act concerning the Erie and Champlain Canals," one-fourth of the moneys to be applied on the construction of the Erie and Champlain canals was appropriated towards the construction of the Champlain canal and the remaining three-fourths to complete sections of the Erie.

The original estimated cost of a canal between Lake Champlain and Waterford on the Hudson river was \$871,000. That was deemed sufficient to construct a canal 30 feet wide at the surface, 20 feet at the bottom and 3 feet in depth, with locks 75 feet long and 10 feet wide in the clear. Thereafter the dimensions of the Champlain canal were enlarged to conform to those of the Erie and the additional cost was estimated to be an increase of one-third. However, the data upon which the estimates were made were

insufficient, and as the work progressed it was evident that the cost of the Champlain canal would exceed the estimates.

In 1821, the Canal Commissioners reported that "the works on the Champlain canal have been vigorously prosecuted during the past season. About seventeen miles of excavation, extending from Saratoga falls to within ten miles of the village of Waterford, have been nearly completed. The banks of the canal, on the above seventeen miles, have been formed and completed with a strength and beauty far surpassing any of the similar works which had previously been finished." Credit is given therefor to the engineer, Mr. William Jerome, in charge of that section of the Champlain canal.

It became necessary to construct a dam across the Hudson at the head of Fort Miller falls, which, aided by excavations, improved the bed of the river through Crocker's and Potter's reefs, and produced good boat navigation between Fort Edward and Fort Miller. The Wood creek was so improved that it was made navigable, but the rapidity of the current and deficiency in the depth of water rendered it necessary to construct a dam and a lock in that stream.

In this report they predicted that the Champlain canal would be completed the following year, so that vessels could pass from Lake Champlain to the Hudson river without delay.¹ In a later report the commissioners say that the dam, which had been constructed at Fort Edward, was injured by the freshet of 1821 and that Canvass White was directed to lay out a new feeder from the Hudson from above Glens Falls. This was found impracticable and it was decided to repair the dam at Fort Edward.

The Champlain canal was opened to navigation and boats passed through it from Whitehall to Waterford in the fall of 1822. The cost of construction was \$921,011, up to 1832, which included the cost of the canal from Fort Edward to the dam above Saratoga Falls.

The Glens Falls feeder was authorized in 1822, completed in 1837, and cost \$91,944. The amount of tolls collected during the short period of navigation in 1822 was \$3,625.44.

1. 2 N. Y. Canal Laws, 19, 24.

In their report, under date of April 3, 1823, it appears that navigation for ten miles of the distance between Waterford and Whitehall was in the channel of the Hudson river and for six miles in the channel of Wood creek, which was unsatisfactory and the commissioners say that "some future legislature will doubtless furnish a more perfect and unbroken communication between Lake Champlain and the tide waters of the Hudson."

In 1824 petitions of the inhabitants of the counties of Rensselaer, Saratoga, Washington, Warren, Essex, Clinton and Franklin were presented to the Legislature in relation to the navigation to the northern canal from Fort Edward to Fort Miller, in which it was represented, "that experience has already fully demonstrated the fact, that by using the bed of the Hudson river, between Fort Edward and the Saratoga falls, as a substitute for canal navigation, transportation was at all times tedious and expensive, and during periods of floods and high winds, is wholly interrupted; and," the petitioners assert, "that the expense of transportation, between Lake Champlain and Troy, the last season, has been greater on the short distance between Fort Edward and the Saratoga cut, than it has been upon the whole line of the canal, which embraces the residue of the distance."¹ It was asserted that "whatever may have been anticipated from the river navigation, between Fort Edward and Fort Miller it is now demonstrated, and put beyond the reach of contradiction, that it will not answer the purposes of a safe canal navigation." On April 7, 1824, the Senate adopted a resolution directing the Canal Commissioners to cause a careful survey and examination to be made of the eight miles between Fort Edward and Fort Miller and report on the estimate of the expense to the Legislature at its next session.

On April 10, 1824, the Assembly passed the following resolution:

"Resolved (if the Senate concur in hearing), That the canal commissioners be, and they are hereby required to make such alteration

1. *Ib.* 181.

and improvements in the northern canal between Fort Edward and Fort Miller, as in their opinion is necessary, to make a fair and perfect canal navigation."

The Senate concurred in this resolution on the same day. Thereafter doubt arose as to the power vested in the Canal Commissioners under that resolution and the matter was brought again before the Senate, which reported through Mr. Dudley, chairman of the committee on canals, that the purport of the resolution was to direct and authorize the Canal Commissioners "to continue the cut parallel to the river, about three miles below Fort Miller and thence across the Hudson by an aqueduct and which is stated to be desirable."¹

The joint committee on canals in relation to the extension of the Champlain canal from Fort Edward to Fort Miller, made its report to the Senate on March 21, 1825, in which, after reciting the petitions in favor of such improvement and the conditions then existing in that part of the waterways complained of they said that "no reasonable doubt can be entertained as to the propriety, in reference to the interest of the State, of substituting a canal for that distance," but they also recommended that the canal be extended to the pond above Saratoga dam, making the distance ten and a half miles.

On April 20, 1825, an act was passed, known as chapter 277 of the Laws of 1825, authorizing the commissioners to construct a canal from Fort Edward to the dam above Saratoga Falls at an expense not exceeding \$170,000. By this act the commissioners were also authorized to construct a canal from the Black Rock harbor to Buffalo creek along the margin of the Black Rock basin.²

In their report to the Legislature, under date of March 4, 1825, the Canal Commissioners describe the progress made in building the Erie and Champlain canals, including the work on Buffalo creek, Black Rock, Brockport, the Cayuga marshes, Utica, Oriskany, the Albany dam, the Glens Falls feeder, and at other intermediate points. The con-

1. *Ib.* 226, 227.

2. *Ib.* 408.

the Delaware and the Hudson; between the upper waters of the Allegany, Susquehannah and Genesee rivers; between the Erie and Susquehannah, along the valley of the Chenango river; between the Susquehannah and the Seneca lake; between the Erie canal at Buffalo and the Allegany river, at its confluence with the Conewango creek; between Black river and the Erie canal; and between Gravesend Bay, Jamaica Bay, Great South Bay and Southampton Bay, and across Canoe place to Southhold Bay on Long Island. Other eligible communications might be indicated, but these are sufficient to evince the expediency of constituting a board with general powers in relation to internal improvements.”¹ In this communication he stated that 10,000 boats had passed the junction of the Erie and Champlain canals during the last season. The tone of the message was very optimistic as to the benefits likely to result from such an extensive system of internal waterways. Several of these were subsequently constructed and are known as lateral canals, most of which have been abandoned. Some of them will undoubtedly be reconstructed when the demands for cheap transportation are again presented, as they will be, by a population so dense that the facilities afforded by railways can no longer supply its necessities.

In this message to the Legislature, Governor Clinton took a broad view of the whole subject of internal commerce, even transcending the boundaries of our own State and discussing its effect upon the inhabitants of other states, and particularly those bordering on the Great Lakes and extending down the Ohio and Mississippi valleys. It was his belief that the revenue of canal traffic would pay the interest and extinguish the principal of the canal debt, which at that time amounted to \$7,467,770.99.

At that time the State of Ohio had in contemplation a project for uniting the Ohio river with Lake Erie, and on February 4, 1825, passed an act entitled “An act to provide for the internal improvement of the State of Ohio by navigable canals.” The Ohio board of canal commissioners decided to inaugurate the opening of canal construction with

1. 2 N. Y. Canal Laws, 233, 234.

ceremonies on July 4, 1825, on the Licking summit, to which Governor Clinton of New York was invited. He cast the first spadeful of dirt, and Governor Morris of Ohio, the second spadeful, in the presence of many thousands witnessing the ceremonies.

Mr. Clinton was opposed to Federal regulation of traffic on the canals, and inveighed against the imputation that power to regulate commerce on the canals, which were exclusively the property of the people of the State, was given the United States Government under the commerce clause of the Constitution providing for the regulation of commerce "with foreign nations and among the several states, or with the Indian tribes."

Had a different interpretation of the Constitution prevailed and the United States Government assumed the jurisdiction to regulate commerce on the canals, undoubtedly Congress might then have imposed such regulations as to deprive the State of the power to impose and collect tolls on canal traffic. The exercise of such power by Congress had wrought a loss of millions of dollars to the people of this State, if not its commercial paralysis.

Mr. Clinton's message on this important question, is worthy of a Webster or a Marshall. It fortunately was accepted by the statesmen of that day and subsequent generations as a sound exposition of the commerce clause of the Constitution.

During the session of the Legislature following the decision of the United States Supreme Court in the case of *Perry versus Haines*,¹ a resolution was introduced in the Senate, providing, in substance, that the State of New York through a duly constituted commission, apply to the War Department of the United States Government to ascertain the opinion of that Department in relation to the improvement of the Erie, Champlain and Oswego canals, as authorized by the Referendum Act, known as Chapter 147 of the Laws of 1903, before proceeding with the improvement.

I was a member of the Senate at the time and coming, unexpectedly as it did, shortly after the approval of the

1. Reported in 101 U. S., pp. 17-55.

Canal Referendum measure at the general election of 1903, and without any apparent warrant therefor by anything decided in the case of *Perry versus Haines*, the resolution was interpreted by canal advocates as another effort to further postpone canal improvement in this State, notwithstanding the express will of the people that it go forward. The assumption of admiralty jurisdiction over the waters of the Erie canal as over those of the Hudson river and other navigable waters of the United States, was not to be construed as an exercise of sovereign control of the waterways themselves, which were the property of the State, any more than the assumption of admiralty jurisdiction by English admiralty courts of maritime causes on the Bosphorus or high seas was an exercise of sovereign control by Great Britain over those waters. This argument was a complete answer to the purpose of the resolution which was rejected without reference to committee. Mr. Clinton's opinion as expressed in his message of 1825 has ever since prevailed in the councils of the State and nation, and as a result New York achieved its commercial supremacy over the other states of the Union. This illustrates the difficult problems that had to be settled by Mr. Clinton and others in the progress of canal construction.

XIII. ENGINEERING PROBLEMS — THE LATERAL CANALS.

There were 300 bridges between Utica and Albany and several hundred other bridges over the entire Erie canal. Some of these were so low as to occasion complaint from passengers on packet-boats. The settling of the banks of the canal in some instances reduced their height, so the matter of their elevation received consideration before the work was entirely completed. Portions of new work were damaged by freshets and by frosts, dams were carried away and banks injured on account of the porous character of the soil of which they were constructed. Repairs were necessary to keep the canal in operation. There were many culverts and they required watching and repairing from time to time.

One of the most important engineering triumphs was that involved in the construction of the Irondequoit embankment, a mile or more in length, over the Irondequoit creek. When James Geddes originally explored the country and recommended the "interior route" from Lake Erie to the Hudson in 1808, he found it desirable in some manner to utilize the waters of the Genesee river as a feeder for the canal. The Irondequoit creek, whose waters were much lower than the waters of the Genesee river, intercepted the proposed line of the canal, and that necessitated the building of an aqueduct or other structure, through the valley and over the creek. To accomplish this result, when he made his survey in 1816, he recommended an embankment 34 feet wide on the top and 229 feet wide on the bottom, and from 40 to 70 feet in height to maintain a canal level to be fed by the waters of the Genesee river as far east as Mud creek. In speaking of this engineering project, in a letter addressed to William Darby, under date of February 22, 1822, James Geddes said:

"In December of that year [1808] I left home . . . and after discovering at the west end of Palmyra that singular brook, which divides, running part to Oswego and part to the Irondequot bay, I levelled from this spot to the Genesee river, and to my great joy and surprise found the level of the river far elevated above the spot where the brooks parted, and no high land between.

"But to make the Genesee river run down Mud creek, it must be got over the Irondequot valley. After levelling from my first line one-half mile up the valley, I found the place where the canal is now making across that stream at Mann's mills. . . . The passage of the Irondequot valley is on a surface not surpassed, perhaps in the world for singularity. No adequate idea can be conveyed without a map. Those ridges along the top of which the canal is carried, are in many places of just sufficient height and width for its support, and for 75 chains the canal is held up, in part by them and in part by artificial ridges, between 40 and 50 feet above the general surface of the earth. . . . The arch through which the stream [Irondequoit creek] passes under this stupendous embankment is 26 feet span, 17 feet high and 245 feet long, resting upon nearly 1,000 piles, some of them driven 20 feet. The surface of this wood foundation is just 70 feet below the top water line of the canal. . . . While traversing

these snowy hills in December, 1808, I little thought of ever seeing the Genesee waters crossing this valley on the embankment now constructing over it. I had, to be sure, lively presentiments, that time would bring about all I was planning, that boats would one day pass along on the tops of these fantastic ridges, that posterity would see and enjoy the sublime spectacle, but that for myself, I had been born many, many years too soon. There are those, sir, who can realize my feelings on such an occasion, and can forgive, if I felt disposed to exclaim 'Eureka,' on making this discovery.

"How would the great Brindley, with all his characteristic anxiety to avoid lockage, have felt in such a case; all his cares at an end about water to lock up from the Genesee river, finding no locking up required. Boats to pass over these arid plains and along the tops of these high ridges, seemed then like idle tales to everyone around me. . . . The Irondequot embankment will, I think, receive the admiration of all visitors. I have seen, sir, the famous Harper's ferry on the Potomac, and if the Philosopher of Monticello could see, when finished, said embankment, I trust he would pronounce it a sight still more worthy across the Atlantic, than Harper's ferry."¹

The achievement of James Geddes in this and other remarkable engineering projects entitles him to rank with such a canal engineer as James Brindley, who undertook and carried out by means of aqueducts over valleys and rivers the famous Bridgewater canal; and who, when asked in an examination before the House of Commons, "For what purpose he considered rivers to have been created?" replied, "To feed navigable canals."

There were several other embankments on the Erie and Champlain canals, which carried the waters of the canals across intercepting streams.

The Erie canal, when constructed, was 363 miles long and had 83 locks and its summit level was 688 feet above the level of the sea. The Champlain canal was 66 miles long and had 20 locks; and the Glens Falls feeder and pond were 12 miles long and had 13 locks.

The Canal Commissioners in their report for the year 1818 say that "locks are the most difficult of all the works which will be necessary and their construction is already well understood in this State."

1. 1 N. Y. Canal Laws, 42-45.

Nathan S. Roberts, who was appointed assistant engineer and who under Benjamin Wright, the principal engineer of the middle section, "conducted the operation of levelling and designating the canal line, as it was actually established most of the way from Salina to the Seneca river,"¹ prepared plans for five double combined locks of 12 feet lift each, working side by side to overcome the 60 feet rise at Lockport, and these plans were adopted in preference to those submitted by the other engineers. This was a great achievement for Mr. Roberts, because the project was beset with many difficulties occasioned by the solid rock through which the canal and locks were constructed.

The locks at Little Falls were under the supervision of Canvass White, who, it is said by the Canal Commissioners in their report in 1822, "by a judicious distribution of his locks, dropped his various levels on land giving suitable depth of cutting and requiring but little embankment," and thereby avoided damage by the annual floods of the Mohawk.²

The route of the canal through the Mohawk valley was the occasion of much solicitude on account of difficulties along the Mohawk. After the route had been laid out along the south bank of that river, the commissioners directed Benjamin Wright and James Geddes, the two senior engineers, together with Canvass White, to survey lines on both sides of the river and report thereon. This survey was made and the engineers were of the opinion that it would be wise to construct the canal across and recross the river at certain places. This was to avoid the expense of rock-excavation and the construction of embankments. Between Little Falls and Schenectady there were 13 locks, 11 guard locks, 60 culverts, 13 aqueducts, 105 bridges and 6 dams, nearly all of which were of solid masonry.³

The construction of the locks at Cohoes Falls occasioned serious differences among engineers and the Canal Commissioners, but the "sixteens," as they were popularly called,

1. *Ib.* 408.

2. 2 N. Y. Canal Laws, 72.

3. *Ib.* 111.

were constructed and formed a cascade quite as picturesque as the falls themselves.

The dimensions of the original Erie and Champlain canals were as follows: The prisms were 40 feet wide at the surface, 26 feet wide at the bottom and 4 feet deep. The locks were 90 feet long and fifteen feet wide. The maximum size of boats navigating them was 78 62-100 feet long, 14 46-100 feet wide. They had a draft of $3\frac{1}{2}$ feet and could carry 75 tons, although nearly all built in 1825 were of 35 to 45 tons capacity.

Tolls were first levied and collected on July 1, 1820. In 1821 the Canal Commissioners established rates of tolls, which ranged from five mills per ton per mile on salt and gypsum to one cent per ton per mile on flour, meal, all kinds of grain, salted provisions, pot and pearl ashes, two cents per ton per mile on merchandise, five mills per hundred feet per mile on lumber, five mills per ton per mile on brick, sand, limestone, iron ore and stone, five cents per mile on passenger boats and various other rates on other articles. During the first year that these prevailed, the aggregate tolls were \$5,437.34.

In 1825 the Joint Legislative Committee recommended that the Canal Commissioners be given power to increase the rate of tolls and to appoint collectors. The Canal Commissioners had the management and control of the canals, subject to legislative approval, with ample powers to do whatever was necessary to promote their usefulness.

After the rates of tolls first established had been in operation some time, it was found advantageous to the State to revise them and that was done from time to time until they were finally established by constitutional amendment in 1882. The aggregate revenue therefrom on the Erie, Champlain, Oswego and other canals of the State was \$134,900,020.58, or more than the entire cost of all the canals of the State.

The building of the Erie canal was a triumph in public improvements that had no parallel in this country. The Chesapeake and Ohio canal, first suggested by General Washington, had been partially constructed but not com-

pleted. A commission had been appointed in 1825 to make surveys and estimates for the Pennsylvania canals; and the construction of the Ohio canals had been commenced the year the Erie was completed. Several smaller canals, however, had been built prior to or at that time, such as the Middlesex canal in Massachusetts, the Schuylkill canal in Pennsylvania and the LaChine canal in Canada.

The completion of this undertaking, which to the men of that period appeared an extraordinary result, was the occasion of rejoicing from one end of the State to the other. They saw their hopes realized and their prophecies fulfilled. The long struggle against foes within and obstacles, that might have deterred men of less resolution than they, were overcome and all joined in a celebration that has no parallel in the annals of the State. Success was proclaimed from platform and from pulpit. The press voiced public sentiment in encomium and panegyric. The voyage of the Seneca Chief from Buffalo to Sandy Hook was a continual ovation to Governor DeWitt Clinton and his compeers, who had wrought the union of the waters of Erie with those of the Hudson. It involved constructive genius of a high order, and its consummation presaged the ultimate commercial supremacy of New York over other states.

Transportation over the Erie and Champlain canals soon became active, and packet boats carrying passengers, baggage and expressage made regular trips averaging one hundred miles a day. These were fitted with berths to accommodate 30 or more passengers and were cleanly and commodious.

The rate of fare was from 3 to 4 cents per mile including one-half cent toll per mile on each passenger. For nearly a quarter of a century these boats afforded the chief means of transportation from the Hudson to western New York, Pennsylvania and Ohio.

As canal construction neared completion, petitions began to pour into the Legislature from various parts of the State, praying that power be conferred upon the Canal Commissioners and appropriations be made to construct canals from the trunk line canals to various outlying counties of the State.

It was made evident that the Erie and Champlain canals were but the first in a series of great undertakings, which should intersect the larger portion of the State with waterways connecting the various lakes and rivers, and form, altogether, a network of natural and artificial waterways from the Atlantic ocean, Long Island Sound and the Hudson river on the east to the Great Lakes and St. Lawrence on the west.

In a Joint Report of the Committee of the Senate and Assembly, on canals and internal improvements, made to the Legislature in 1825, there are enumerated 17 such petitions from the south tier, central, western, northern and eastern tiers of counties, which resulted in the introduction of many bills embodying the views and wishes of the various petitioners.

On April 20, 1825, the Legislature passed the Omnibus Canal Act known as Chapter 236 of the laws of 1825, authorizing the Canal Commissioners to cause examinations, surveys and estimates to be made

"Of the most eligible routes for navigable communications in the following places, to-wit: from the Seneca lake to the Chemung river, at or near the village of Newtown; from Syracuse in Onondaga county, to Port Watson in the county of Courtland, and also from Chenango Point up the valley of the Chenango river through the town of Norwich to the Erie canal; from the Susquehannah river up the valley of the Unadilla to the Erie canal; from Cayuga lake to the Susquehannah river, at or near the village of Owego; from the Erie canal in the county of Herkimer, to the upper waters of Black river, thence on the most eligible route to the river St. Lawrence, at or near Ogdensburgh; from the Erie canal, near the village of Rome in the county of Oneida, by the way of the Black river to Ogdensburgh; from Rochester to Allegany river at Olean, through the valley of Genesee river, from Scottsville by way of Le Roy, to the upper falls of the Genesee river; from the Champlain canal to the Vermont line, along the valley of the Battenkill, or by any other more eligible route; from lake Erie to Allegany river, through the valley of the Conawanga, and from the Allegany river at Olean to the Erie canal by way of the village of Batavia; from Portland, in Chautauque county, to the head of Chautauque lake; from the village of Rochester in the county of Monroe, to Lake Ontario; from Sharon, or near thereto, to the tide waters of the Hudson, at or be-

low the mouth of Croton river, or to the city of New York between Gravesend bay, Jamaica bay, Great South bay, South Hampton bay, and across the canoe place to Southold bay on Long Island; and from the village of Catskill on the Hudson river, along the valley of the Catskill and Schoharie creeks, to intersect the Erie canal west of Schoharie creek."

The Commissioners were directed to report to the Legislature at the next session and they were authorized to decide upon the practicability of the above routes and not to survey such as they considered impracticable.¹

In conformity with the petitions, the authority was conferred upon the Canal Commissioners in some instances to make preliminary surveys and report thereon to the Legislature. The joint committee on canals and internal improvements, March 5, 1825, reported favorably upon the petitions for a canal connecting the Erie with the Cayuga and Seneca lakes, and the Commissioners directed David Thomas to make a survey and a bill was framed to carry that recommendation into effect.

The engineer, David Thomas, surveyed two routes from Seneca Falls to the Erie canal. The Canal Commissioners decided that the route by the Seneca lake outlet would afford accommodation to the largest number of people and adopted it. Some of the contracts were let in 1826, but most of the work was relet in 1827, and the work was completed in 1828, so that boats passed from Seneca lake at Geneva to the Erie canal at Montezuma on November 15, 1828. The length of the canal was 20 miles, and one-half the distance was through the natural channel of the Seneca outlet. The locks were 90 feet in length by 15 feet in width, and the prism at the surface of the water was 40 feet wide and at the bottom 28 feet, with a depth of 4 feet. The original appropriation for this canal was \$150,000, made by Chapter 271 of the Laws of 1825, out of which all the right, title, interest and properties of the Seneca Lake Navigation Company were purchased at the sum of \$33,867.18, of which latter sum \$19,155.04 went to the general fund of the State for the stock of said company owned by the State.

1. 2 N. Y. Canal Laws, 397, 398.

In 1827, a further sum of \$45,000 was appropriated. The following year the Canal Commissioners were authorized to construct a canal to East Cayuga, and the sum of \$100,000 was appropriated therefor. That canal was $21\frac{1}{2}$ miles long, had 11 locks 90 feet long by 15 feet wide, with a prism 40 feet wide at the surface and 4 feet deep.

By Chapter 325, Laws of 1829, \$8,000 was appropriated for the canal to East Cayuga and \$24,000 for the Cayuga & Seneca canal. Considerable difficulty was experienced from the variation of the depth of water in Seneca lake, which occasioned some contention between residents at the head of Seneca lake and those in the villages at the foot and below the lake. The industries at Waterloo and Seneca Falls were affected by the height of water in Seneca lake and the people at the head of the lake were subject to floods and washouts when the water was very high in Seneca lake. The Cayuga inlet falls into the head of Cayuga lake and at one time was navigable for the largest vessels on the Erie canal for a distance of two miles from its mouth. From time to time the Legislature has taken cognizance of its navigability and made appropriation to remove sandbars at its outlet and for the improvement of its channel. This afforded water transportation for the industries of Ithaca.

In 1839, in response to petitions for the improvement of the Cayuga & Seneca canal, the Canal Board reached the conclusion that: "The peculiar connection of the Cayuga & Seneca canal with the Cayuga and Seneca lakes; the extent of the country thereby penetrated and reached; a judicious regard to the union of lake and canal navigation which this case [presented], together with the kind of vessels best fitted for this twofold use, and a just and fair consideration of the extensive and growing interests of the large and increasing population, whose trade [would] naturally take this route," justify the enlargement of the canal to the full dimensions of the Erie, which was then undergoing enlargement.¹ No action, however, was taken in the matter until 1840 when the commissioners were authorized by Chapter 302, "to improve the Cayuga and Seneca canal,

1. N. Y. Assembly Docs., 1839, No. 367, p. 1.

by cutting a channel through the bar at the northeast bend of the Seneca lake to the said canal, and to regulate the height of the water of the lake and the outlet thereof, in such manner as in their opinion [should] be most conducive to the public interests."¹ For the work the sum of \$12,000 was appropriated.

Chapter 114 of the Laws of 1842 "caused all work on the State canals to cease except as was necessary to preserve or secure navigation, until the adoption of the Constitution of 1846." That was known as a "Stop law," and was occasioned by the financial affairs of the State which were in a deplorable condition.

Little was done until 1847, when the locks on these canals were to be made of the same dimensions as those on the Erie. In 1849, two enlarged composite locks were completed and brought into use at Waterloo.

In 1850, five locks were completed and in 1851 the Seneca side lock was completed and two piers 350 and 400 feet long at the Seneca outlet.

Down to September 30, 1882, when tolls were abolished, there had been expended on the Cayuga inlet \$2,020 in addition to payments from the General Fund, and for superintendence on the Cayuga & Seneca canal, for construction and improvement, the sum of \$1,834,184.40; and for superintendence and ordinary repairs the further sum of \$1,027,538.57. The revenues derived from the Cayuga inlet were \$8,837.02, and revenues derived from traffic on the Cayuga & Seneca canal amounted to \$1,054,355.96, as stated by the auditor of the Canal Department in his report under date of January 9, 1883.

The size of the locks was increased to 110 feet in length, 18 feet in width, and a depth of 7 feet, which were the same dimensions as the locks on the enlarged Erie. The enlargement was completed in 1863, with the exception of locks which were rebuilt and enlarged subsequent thereto.

The Crooked Lake canal connected Crooked lake with Seneca lake. Its construction was authorized on April 11, 1829. The work was commenced in 1830 and completed in

1. N. Y. Laws, 1840, p. 248.

1833 at an expense of \$333,287.00. The canal was 8 miles long and after it was enlarged it had 27 locks, which were 90 by 15 feet, and boats navigating it carried from 70 to 76 tons. It was abandoned in June, 1877.

The Chemung canal connected the waters of Seneca lake with the Chemung river at Elmira. Its construction was authorized on April 15, 1829, and it was completed in May, 1833, at a cost of \$314,395.51. It was 23 miles long and had 49 locks, which were 90 feet long by 15 feet wide and had a depth of 4 to 4½ feet. Boats navigating that canal carried from 85 to 90 tons freight. It was abandoned in 1878.

By this system of intersecting waterways the coal regions of Pennsylvania were brought into water communication with the cities, towns and villages of Western New York. A boat with a cargo of coal passed from Pennsylvania up the Chemung river into the Chemung canal, proceeded into Seneca lake and thence through the Seneca and Cayuga canal into the Erie canal.

In 1869, there was upwards of half a million tons of freight carried over the Cayuga and Seneca canal and 245,761 tons over the Chemung canal, and in the year 1863 there was transported over the Chemung canal 307,151 tons of freight; that included freight from Cayuga lake and the Cayuga inlet, as well as freight from Keuka lake through the Crooked Lake canal, down Seneca lake, and the freight passing through the Chemung canal into Seneca lake. Fleets of from 30 to 50 boats were seen in tow on Seneca lake at one time. The effect of this water transportation upon the towns, cities and villages in touch with it may be judged by their rapid growth during the period of its greatest activity and in advance of railway transportation.

As already stated, the new barge canal is within easy reach of these interior lakes whose commerce during the middle of the nineteenth century was extensive. It is only a matter of time when these interior lakes will be brought into complete communication with vessels navigating the new barge canals, for surveys have already been made for that purpose.

One can hardly imagine a more delightful tour from the eastern or western portions of the State to the central portion of the State, up into these beautiful lakes which have played so important a part in the history of Western New York and which are surrounded by thriving villages and a prosperous and intelligent population.

Shortly after the Erie and Champlain canals were completed the traffic was so great upon them that it became apparent that they were inadequate to meet the demands of the increasing commerce over them. Within 15 years after their completion several lateral canals were commenced and some of them completed. Sentiment throughout the State was strongly in favor of the extension of waterways to the outlying counties and the improvement of the existing Erie canal to meet the increased traffic over it.

In 1834, the Canal Commissioners submitted a special report to the Legislature in relation to the reconstruction of the aqueduct over the Genesee river, and providing an additional feeder at Camillus on the Jordan level for the Erie canal. This report followed the message of Governor William L. Marcy to the Legislature in 1834, in which, among other things, he said: "If our canals are to be what a wise management cannot fail to make them—the principal channels for this trade—we must calculate its extent, and make them adequate to this object."¹

The Canal Commissioners first addressed themselves to the question of doubling the locks and employed Holmes Hutchinson to examine sites and furnish plans and estimates to accomplish that result.

XIV. ENLARGEMENT AND RECONSTRUCTION.

On May 11, 1835, the Legislature authorized the first enlargement of the Erie canal, and the work was commenced in 1836. The estimated cost of the enlargement was \$23,402,863.02. It was not completed until September 1, 1862, and cost \$31,834,041.30.

1. 1 "History of the Canal System . . . of New York," 134.

The plan of enlargement adopted in 1835 contemplated an increase in carrying capacity of boats from 75 to 175 tons. The work of enlargement was protracted and costly, and resulted in the loss of commerce to the State. Railroads were released from the payment of tolls in 1851 and canal tolls were reduced in 1852 and 1858. The average cost of railway freight charges from 1860 to 1865 was \$4.42 per ton, and canal charges including tolls were \$1.88 per ton. During this period the aggregate canal tonnage was 29,895,121 tons.

The direct loss to the State by the abolition of railway tolls was several millions annually and the indirect loss by the diversion of tonnage from the canals to the railways was large. The cost of transportation on the canals in 1853, including tolls, was one cent and one mill per ton per mile, and on the New York and Erie railroad two cents and four mills per ton per mile.¹

The enlargement finally consummated increased the dimensions of the prism so that it was 70 feet on the surface, from 52½ to 56 feet on the bottom and 7 feet deep. The number of locks was reduced to 72 lift locks and 3 guard locks, which were 110 feet long and 18 feet wide, built of stone, which admitted of the passage of boats carrying 240 tons.

The revenue from tolls was so large during the decade after the completion of the Erie that extravagant notions were entertained as to their volume in the future. It was predicted that they would amount to a million dollars in 1836 and four million in 1856, and would continue to increase in that proportion for half a century. Hitherto there had been no direct tax to carry forward canal construction in this State, and the Governor and State officials generally were opposed to raising revenues by direct taxation; and still, large as the revenues were, it was evident that the expense of the improvement could not be met without negotiating a loan or resorting to direct taxation on account of the enormous drain upon the canal fund in the construction of the various lateral canals.

1. Report of the N. Y. State Engineer for 1853, p. 28.

It was generally conceded, however, that the Erie canal must be enlarged to accommodate the traffic over it, which had far exceeded its capacity so that delays were constant and protracted and that was a serious impediment to the commerce of the State.

It is interesting to note that in the arguments made during the campaign for canal enlargement, it was said that unless the State of New York provided adequate means for transportation other routes would secure the traffic and the states of Pennsylvania, Maryland and Virginia, and especially the Dominion of Canada, were making strenuous exertions to divert the trade of this important region through their own territories and to their own markets, as expressed in a Memorial of the citizens of Utica to the Legislature in 1835.

It was also stated that the doubling of the locks which had been authorized by the Legislature, was but a temporary relief.¹

The Canal Commissioners selected John B. Jervis, Holmes Hutchinson and Frederick C. Mills, engineers of distinction, to investigate and report upon a plan for the enlargement of the Erie canal. They made their report to the Legislature in 1835, and thereupon the Canal Commissioners stated that:

"The Canal Board entertain the opinion, that an enlargement of the Erie canal would be, in all respects, the best plan to accommodate the transportation between the Hudson river and the western lakes. . . . At the last session of the Legislature a law was passed, directing the Canal Commissioners to double the locks, from Albany to Syracuse. This measure will increase the capacity of the canal and accommodate the trade for a short period of time, but will not sensibly lessen the expense of transportation. It is, however, quite certain, that the time is not far distant when additional facilities will be necessary; and the Canal Board take this occasion to express the opinion, that the enlargement of the Erie canal should be directed at the present session of the Legislature."²

Therefore Chapter 274 of the Laws of 1835 was passed authorizing the Canal Commissioners to enlarge the Erie

1. 1 "History of the Canal System . . . of New York," 43, 44.

2. *Ib.* 145.

canal and to construct a double set of lift locks as soon as the Canal Board believed the public need required such improvement.

This question involved expert engineering talent and should take into consideration the question of locks, new aqueducts and additional sources of water supply. In addition to the engineers already mentioned, Nathan S. Roberts was employed to make a survey from Fultonville to Frankfort, John B. Jervis a survey from Albany to Fultonville, Frederick C. Mills from Frankfort to Lyons, and Holmes Hutchinson from Lyons to Buffalo. There were serious differences of opinion as to the size of the enlarged locks, the dimensions of the prism and the reconstruction of the aqueducts. The act authorizing the reconstruction did not permit the levying of taxes to carry forward the work, and restricted it to moneys constituting the Erie and Champlain canal fund. This was not sufficient to warrant the immediate execution of the work; and in 1836 Governor Marcy again warned the Legislature against going forward with internal improvements on so extensive a scale without first having formulated a policy of financing the project which should involve provision for the payment of the interest as it accrued and the redemption of the principal at maturity. In his message he stated that "The treasury is entirely exhausted."¹

Many changes were proposed, some on the ground of economy, others made necessary by reason of the enlarged locks and prism, and the increase in the size of the aqueducts.²

In the Constitutional Convention of 1846, the fiscal policy of the State was quite fully considered by the members of that convention, and more particularly by General James Tallmadge, the Hon. Charles P. Kirkland, the Hon. Michael Hoffman, and others.³ The results of their deliberations were embodied in article 7 of the Constitution of 1846,

1. Message of the Governor, N. Y. Assembly Docs., 1836, pp. 9-13.

2. These are very fully set forth in Whitford's "History of the Canal System of the State of New York," already cited.

3. See Debates of the Constitutional Convention of 1846.

which among other things in section 6 provided that: "The Legislature shall not sell, lease or otherwise dispose of any of the canals of the State, but they shall remain the property of the State and under its management forever."

The article referred to is long and provides an elaborate scheme for financing the existing canal debts and for their payment by the operation of sinking funds and limiting the expenditures of canal revenues to waterways then under construction.

The first enlargement ended in 1862, when sweeping changes were made in administering canal affairs; and the Civil War for a time interfered with the progress of canal improvement in this State. It was at this time, it is said, that favoritism was shown in the letting of contracts for canal construction and that frauds were charged against what was denominated the "canal ring." It is openly stated that contractors organized to prevent competitive bidding, and the Canal Board was accused of being in collusion with the contractors. The committee of investigation found that there had been a waste of public funds in the letting of contracts, amounting to several millions of dollars, for work but half done or wholly unperformed; and that a special appropriation had been procured in the interest of favored contractors. Judge Lincoln, in his valuable "Constitutional History of New York" says: "It had long been apparent that reform was needed in canal administration."¹ He adds that Gov. Seward in his message to the Legislature in 1839 objected "to the powers exercised by the [canal] commissioners."

The Constitutional Convention in 1867 undertook to reform the administration of canal affairs in this State by the abolition of the Board of Canal Commissioners and the creation of the office of Superintendent of Public Works; but its recommendations were not ratified by the people at the November election in 1869. It was reserved for the Constitutional Commission of 1872 to accomplish such constitutional changes as would accomplish the reforms, which were generally conceded as necessary.

1. Lincoln's "Constitutional History of New York," II, 354-355.

In Chapter 277 of the Laws of 1825, the Canal Commissioners were authorized to make alterations and improvements in the Champlain canal between Fort Edward and the dam above Saratoga falls on the Hudson river, providing the expense should not exceed \$170,000, and the commissioners were inhibited from the construction of an aqueduct across the Hudson river. The contracts were let for the work in 1825 and completed in 1827. In 1829, three locks were rebuilt at Fort Anne. In 1833 a dam was built across the Mohawk river below Cohoes Falls. In 1834 Holmes Hutchinson, an engineer, reported that it would cost \$127,829.62 to reconstruct the Glens Falls feeder, replacing the wooden structure with solid masonry, and putting the feeder in first class condition.

In 1836, the Legislature, in passing chapter 453, authorized the rebuilding of the Glens Falls feeder in conformity to the recommendations of Mr. Hutchinson. Twelve locks were rebuilt. They were 15 feet wide and 100 feet long, as provided by law. In 1840 it was decided to rebuild that portion of the canal which had been constructed through the channel of Wood creek, by constructing a permanent and durable slope wall, which was done for a distance of seven miles, at a cost of a thousand dollars per mile.

In 1843 a pier was constructed at Whitehall, which was 216 feet long, and extended into the lake 12 feet below the lower lock walls.¹

The improvements and enlargement of the Champlain canal and the Glens Falls feeder were urged with so much insistency by those interested in that waterway, that they prevailed upon the Legislature in April, 1860, to pass chapter 213 of the Laws of that year, authorizing the increase of the prism to five feet in depth and to a uniform width of 35 feet on the bottom. The same act authorized the rebuilding of some of the locks and carried with it an appropriation of \$170,000. The work was commenced in 1861 and completed in 1862—at about the time of the conclusion of the Treaty of Ghent and the treaty following that between Great Britain and the United States, whereby each Govern-

1. See N. Y. Assembly Docs., 1844.

ment was to maintain but one vessel on lakes Champlain and Ontario and but two vessels on the other Great Lakes. The conclusion of this treaty afforded a pretext for the advocates of canal improvement to urge enlargement of the Erie, Oswego and Champlain canals, with locks adequate for the passage of gunboats for the protection of the Northern and Western lakes. Thereafter a survey was made and the Legislature passed an act authorizing the construction of locks 150 feet in length and 25 feet in width, providing the Federal Government would bear the expense of such improvement, which it was unable to do on account of its depleted treasury.

In April, 1864, the sum of \$295,000 was appropriated to be expended on both the Champlain canal and the Glens Falls feeder, to make them 35 feet wide at the bottom of the prism, which was to be five feet in depth. Several locks were enlarged in that canal. In 1866 it was found that the funds were insufficient therefor and a further sum of \$247,500 was appropriated.

The Champlain canal was subject to washouts, due to freshets in streams intersecting it, and in the month of April, 1868, a large portion of the Saratoga dam was carried away, which was repaired during the following winter.

In October, 1868, a series of breaks occurred in the berme bank of the canal which were attributed to a hole made through the bank by a muskrat. The Canal Commissioners say in their report for 1869: "Within the past ten years several breaks from the same cause have occurred at this place and it would be well to remedy this either by putting in the center of the bank for its whole length, a course of sheet piling, or a light concrete wall extending from top of bank down two or three feet."¹

In 1860, the Legislature authorized the enlargement of the prism so that it would measure 50 feet on the surface, 35 feet at the bottom, and have a depth of five feet of water. This enlargement was necessary to accommodate the enlarged vessels navigating Lake Champlain and the

1. Annual Report, N. Y. Canal Commissioners, 1869, p. 15.

Hudson river. The prism was too narrow to admit of the passage of such vessels, and they were subject to prolonged delays at the various turn-out stations.

In 1864, the further sum of \$295,000 was appropriated to be expended in carrying forward the improvement begun in 1860, and a further appropriation was made in 1866 of \$247,500. During the following year, 1867, improvements were made at Fort Miller, Fort Anne and at other places along the line of the canal. The tonnage in the year 1868, through the increased size of the prism, was 1,120,585 tons; and in 1890 it reached its maximum of 1,520,757 tons.

I derived my first practical experience in canal navigation on the Champlain canal in 1868. At that time it was not uncommon to see 40 boats in line for passage through the various locks on that canal, and their carrying capacity was from 120 to 140 tons; whereas the carrying capacity of vessels navigating the Erie, with a prism of seven feet deep, was 220 tons. Those were lively days on both the Champlain and Erie canals. As the boats assembled below Waterford they were taken in tow by river steamers to New York in flotillas of 40 or more each.

The tonnage on the Champlain canal has been large and yielded a revenue to the State in tolls of \$6,416,341.37. The cost of the collection of tolls, superintendence and repairs of the Champlain canal was \$5,630,023.39, and the cost of construction and improvements was \$4,913,295.79. These aggregate figures are down to September 30, 1882, as shown by the State Auditor's report for that year, when tolls were abolished.

In 1870 the State Engineer and Surveyor estimated the cost of the enlargement to conform to the dimensions of the Erie at \$3,200,000. Aside from the original cost of construction, appropriations for improvements on the Champlain had been much smaller, proportionately, than upon the Erie, although the traffic on the Champlain canal had been as much proportionately as had been the traffic over the Erie.

The enlargement and improvement of the Champlain canal contemplated in 1870 was undertaken by the letting

of several contracts in 1872, which were partially performed, when the appropriation therefor was exhausted and nothing more was appropriated until the year 1874, when the further sum of \$500,000 was made available in the spring of 1875. Under that appropriation, owing to the disposition of the people in various portions of the State, and by the passage of a law in 1876, modifying the plans of the proposed enlargement, the depth of water in the prism was to be only six feet, and the larger part of the money was expended in putting the locks, bridges, and other structures in good repair, and in the removal of coffer-dams and old structures from the channel, but a uniform depth of six feet of water was not secured. Efforts were made subsequently to carry forward this improvement of widening the canal so as to obtain a width of 44 feet on the bottom and a uniform depth of six feet, but such improvement was completed to the extent of 20 miles only out of the whole 66 miles, down to the year 1890. The work was done in sections and not continuous.

A further improvement was contemplated and partially made under the nine million dollar appropriation authorized in 1895, for the improvement of the Erie, Champlain and Oswego canals. The plan of that enlargement included the straightening of the alignment, the enlargement of the prism by increasing its width and giving it a uniform depth of seven feet. The enlargement of the locks was never carried to completion, owing to the inadequacy of the nine million dollar appropriation to complete the enlargement authorized by the referendum measure of 1895.

Various locks and dams along the Champlain canal were repaired and reconstructed and enlarged from time to time, but the dimensions of the prism were not increased in size equal to those of the enlarged Erie, but the prism and locks of the Champlain barge canal have the same dimensions as those of the Erie and Oswego canals.

The construction of the Oswego canal was authorized by an act passed on April 10, 1820, and work commenced that year. The canal was completed December 10, 1828, at a cost of \$465,437.35. It was 38 miles long and the size of

the prism was 40 feet at the surface; at the bottom 26 feet, and 4 feet deep. The locks were 90 feet by 15 feet in width. The tonnage of boats was from 50 to 75 tons. On May 12, 1847, an act was passed authorizing the enlargement of the locks on the Oswego canal, and on July 10, 1851, an act was passed authorizing the enlargement of the canal prism and work was commenced thereon in 1852. The enlargement was completed on September 1, 1862, at an expense of \$2,511,992.22. The width of the prism was 70 feet at the surface, 52½ feet at the bottom, and 7 feet deep. The enlarged locks were 110 feet long by 18 feet wide, and the boats carried from 210 to 240 tons.

The Oswego canal is to be further enlarged under the referendum measure of 1903, so that its prism and locks will be of the same dimensions as those of the Erie and Champlain canals.

The Oswego canal carried 1,080,076 tons in the year 1860, which was its largest tonnage for any one year.

The aggregate tolls derived from the Oswego canal amounted to \$3,708,547.74 and the cost of collection of such tolls and the superintendence and ordinary repairs on the Oswego canal, down to September 30, 1882, amounted to \$3,371,446.14. The cost of construction and improvements was \$4,295,372.56.

The Oneida Lake Canal Company was incorporated in 1832 with a capital stock of \$40,000. The company was authorized to construct and maintain a canal for 50 years and to impose tolls not exceeding three times those imposed upon the Erie canal. The State reserved the right to take possession of the canal upon payment to the stockholders of the cost of the canal with 10 per cent. interest thereon any time within ten years.

The canal was completed on September 12, 1835, at a cost of \$78,829. It was 6½ miles long and the feeder 3 miles, and the dimensions of the prism were 40 feet at the surface of the water, 26 feet at the bottom and 4 feet deep. The feeder had a bottom width of 12 feet. The locks were uniform with those of the Erie, Champlain and Oswego canals and the vessels carried from 70 to 76 tons. Of its

total length two miles thereof was the canalization of the Wood creek, which had played so important a part in the commercial history of the State. Some years afterward, Fish creek was made navigable.

By an act of the Legislature, passed in May, 1867, the new Oneida Lake canal was authorized and the construction completed in September, 1877, at a cost of \$444,155.64. It was 5 3-10 miles long and its prism measured on the surface of the water 70 feet, at the bottom 47½ feet and had a depth of 7 feet. It had 6 locks which were 110 feet long by 18 feet wide, built of stone and timber, and the vessels carried 220 tons. It was abandoned in 1887.

Wood creek, Oneida lake and the Oneida river form a part of the barge canal now being constructed, and the improvements at either end of Oneida lake are nearing completion.

The largest tonnage was 59,451 tons in the year 1849.

The total revenues derived from the Oneida Lake canal aggregated \$65,893.76. The cost of the collection of tolls, superintendence and repairs aggregated \$144,060.60, and the cost of the construction and improvements of the Oneida Lake canal was \$511,649.36.

The Chenango canal was authorized on February 23, 1833, and the work commenced the following year, and the construction completed in October, 1836, at a cost of \$2,782,124. It was 97 miles long. The size of the prism was 42 feet at the surface of the water, 26 feet at the bottom, and 4 feet deep. It had 116 lift locks, 90 feet long and 15 feet wide, admitting of the passage of boats carrying from 50 to 70 tons. Its extension was authorized in April, 1863, and the work commenced in 1865, but never completed although there was expended \$1,600,889.19. The cost of the work, however, so far exceeded the estimates that it was never completed. The Chenango canal extended from Utica to Binghamton. Its maximum tonnage was 112,455 tons in 1868. The total revenues derived from the Chenango canal amounted to \$744,027.11. The cost of the collection of tolls and the cost of superintendence and repairs on that canal amounted to \$2,081,738.85. The loss in

operating it was \$1,337,711.74. Cost of construction and improvements thereon was \$4,789,470.58.

The Oneida river improvement was authorized on April 29, 1839, and completed in 1850 at a cost of \$79,346.44. It was 19 miles long and the channel was 80 feet wide at the surface, 60 feet wide at the bottom and $4\frac{1}{2}$ feet deep. The locks were 120 feet long by $30\frac{1}{2}$ feet wide and $6\frac{1}{2}$ feet deep. The aggregate revenues derived from the Oneida river improvement was \$217,100.36. The cost of the collection thereof, superintendence and repairs amounted to \$41,140.47. There was a profit in operating that waterway of \$175,920.80. The cost of construction and improvements, down to 1882, \$224,072.33.

The construction of the Black river canal was authorized on April 19, 1836, and completed in 1849, at a cost of \$3,234,779. This canal leaves the Erie canal at Rome, passes up the valley of the Mohawk and Lansing Kill to Boonville, a distance of 25 miles; thence to Black river and unites with the same below High Falls, $10\frac{1}{3}$ miles from Boonville, and thence proceeds along the river to Carthage, a distance of 42 miles. It had a prism with its surface 42 feet, bottom 28 feet wide, and 4 feet deep. Its locks were 90 feet long and 15 feet wide, built of stone, and admitted of the passage of boats carrying from 45 to 50 tons.

The Black river feeder was authorized on April 19, 1836; completed in October, 1848, at a cost of \$253,437.52, and extended from Boonville to Williamsville. The length of the improvement was $10\frac{1}{4}$ miles, with a prism 46 feet at the surface, 30 feet at bottom and 4 feet deep.¹ It had one lock 90 feet long, 15 feet wide, built of stone, and admitted of vessels carrying 70 to 76 tons.

The Black river improvement was also authorized on April 19, 1836. A contract for the improvement from Lyons Falls to Carthage, a distance of $42\frac{1}{2}$ miles, was let in 1851, but abandoned in consequence of a decision of the Court of Appeals; was relet in 1853, and again abandoned by the Canal Board in 1854. A portion of it was relet in December, 1854, for a distance of eight miles. The latter

1. Annual Report, N. Y. Canal Commissioners, 1852.

contract provided for clearing the river from Lyons Falls to Carthage, to enable the floating of lumber from Lyons Falls down the river to market; the extensive lumber interests along the Black river having intrenched upon its navigability and utilized its waters for power purposes.¹ It was not completed until 1861 at a cost of \$108,699.43, and included the waterway 42½ miles long, with a prism 60 feet wide at the surface, 40 feet wide at the bottom, and 5 feet deep. It had two lift locks 160 feet long by 30 feet wide, built of wood.

The Black river canal, the Black river improvement, the Boonville feeder and the Moose river improvement above Lyons Falls and other intersecting navigable streams, constituted an aggregate navigable mileage of 93¾ miles and yielded a revenue down to September 30, 1882, of \$301,008.63. They cost the State for the collection of tolls, superintendence and ordinary repairs, the sum of \$1,552,229.96, in addition to the cost of construction and improvements, which aggregated \$3,894,952.39.

The greatest tonnage carried on the Black river canal was 143,561 tons in the year 1889. The traffic extended from Central New York northwesterly up to the waters of the Black river and down that stream into Lake Ontario, and brought the commerce of that territory immediately into touch with that of Central and Eastern New York. Although difficulties have arisen from time to time between the owners of mill privileges along the Black river and the State officials with reference to the diversion of the waters of that stream, some of which have been carried into the courts, still it is generally conceded that the canal served a most important function in the early development of that portion of the State by bringing its cities, towns and villages within easy water communication with the metropolis.

There were presented to the Legislature, on April 20, 1825, petitions from the counties in the Genesee valley, requesting the Canal Commissioners to cause examinations, estimates and surveys to be made of the most eligible routes from "Rochester to Allegheny river at Olean, through the

1. Annual Report, N. Y. Canal Commissioners, 1855.

valley of the Genesee river; from Scottsville, by the way of Le Roy, to the upper falls of the Genesee river; . . . from Lake Erie to Allegheny river, through the valley of the Conewongo, and from the Allegheny river at Olean to the Erie canal by way of the village of Batavia."¹

This was one of seventeen separate canals for which surveys were authorized to be made by the act of 1825.

In 1827, a company was incorporated "to improve the navigation of the Cassedaga and Conewongo creeks and the Chautauqua outlet," but the company accomplished nothing.

In 1830 the Genesee Valley route was authorized and residents in other counties and the city of New York joined in a petition to the Legislature, requesting the enactment of "necessary legislation for the opening of intercourse with Pittsburg and the inexhaustible beds of bituminous coal of western Pennsylvania by means of the canal system of the State."²

The canal committee recommended a minute survey of the Genesee valley and on April 30, 1834, an act was passed authorizing the same and for a "side-cut from the village of Dansville down the Canaseraga creek to the Genesee valley line at or near Mount Morris."³ Great difficulties were encountered in the route and it was at first considered necessary to construct a tunnel a thousand feet or more through a cliff of rock, but the work did not proceed. Many petitions were presented to the Legislature in the year 1835-36, and as a result chapter 257 of the Laws of 1836, was enacted authorizing the construction of the Genesee Valley canal, "from the Erie canal in the city of Rochester, through the valley of the Genesee river, to a point at or near Mount Morris; and from thence, by the most eligible route, to the Allegheny river, at or near Olean; and also a branch of the same, commencing at or near Mount Morris, and extending up the valley of the Canaseraga creek, at or near the village of Dansville." If the Canal Commissioners were of the

1. Laws of New York for 1825, ch. 236.

2. 1 "History of the Canal System . . . of New York," 710, 711.

3. *Ib.* 711.

opinion, however, that the construction of the said canal would injure the hydraulic privileges at Rochester, then they were required to connect the said canal with the Genesee river, above the feeder dam above Rochester, and from thence to construct a navigable canal to the Erie canal, or improve the Erie feeder from that place, as might best promote the public interest. The act further provided that "the Canal Commissioners shall determine on the width and depth of the said canal and branch . . . and shall borrow, on the credit of the State . . . such sum or sums of money as shall be required for the same, as they shall deem best for the interest of the State, not exceeding two millions of dollars."¹

The Genesee Valley canal was authorized on May 6, 1836, and completed to Olean in 1857, at a cost of \$5,-827,813. Its length was 124¾ miles. The size of the prism was 42 feet at the surface, 26 feet at the bottom and 4 feet deep. It had 112 lift locks, 90 feet long and 15 feet wide; 2 guard locks built of stone, wood and concrete, and admitted of vessels carrying from 70 to 76 tons. Its greatest tonnage was 158,942 tons transported in the year 1854. The total revenues received from the operation of the Genesee Valley canal down to September 30, 1882, amounted to \$860,164.78. The cost of collection of the tolls, superintendence and repairs on that canal aggregated \$2,814,-808.67, producing a loss of \$1,954,643.89. The cost of construction and improvements aggregate the sum of \$6,737,-430.56.

This canal was to be constructed through one of the most picturesque valleys of the State, within which is located the beautiful Letchworth Park, given to the State by Hon. William P. Letchworth, and accepted pursuant to Chapter 1 of the Laws of 1907. During the building of said canal it became necessary to construct the Portage tunnel, which is 1082 feet in length, which was abandoned, and a new contract let for an "open cut" in place of the tunnel, a saving of many thousand dollars to the State.

1. *Ib.* 712.

In the spring of 1841, 36 miles of the canal were completed. The entire canal was completed in 1862 and shortly after navigation was opened throughout its entire length.

The matter of the abandonment of the lateral canals was beginning to receive consideration and at the fall election of 1874 the State Constitution was so amended as to permit the Legislature to sell, lease, or otherwise dispose of any canals in the State except the Erie, Champlain, Oswego, and the Cayuga & Seneca canals. This was undoubtedly proposed at the instance of rival railways, which were in competition with the waterways of the State, and unfortunately public sentiment was not on the alert to prevent the abandonment of several lateral canals.

In 1866 there were 439 locks on the so-called lateral canals of the State, most of which were wooden structures, and shortly after their construction began to show evidences of decay and the necessity of extensive repairs. This was the principal difficulty in the construction of the Western Inland Lock Navigation Company. Wherever wooden structures were used, it was not long before repairs thereto, or the rebuilding thereof, were necessary to keep the canals in operation. This entailed upon the State, from time to time, a large expenditure of moneys that would have been obviated had substantial structures been provided originally in the construction of the State waterways. The estimated cost of rebuilding the locks on the Chenango, Genesee Valley, Crooked Lake and Oneida Lake canals in 1866 was \$2,310,000.¹

XV. "CANAL FRAUDS" AND INVESTIGATIONS.

The annual reports of the State officials charged with the responsibility of canal supervision, contain detailed statements of moneys expended for ordinary and extraordinary repairs, and estimates for further improvements along the lines of the several canals then in operation.

This gave rise to serious complaints on the part of rival political parties and assumed such proportions that they

1. State Auditor's Report for 1866, p. 81.

were denominated by parties not in power as "canal frauds," which are considered in this connection.

We have already stated that charges of fraud were made against some of the early contractors and other charges were made against later contractors from time to time and against officials charged with the responsibility of letting and supervising canal contracts. Matters assumed so grave a condition in the year 1846 that it led to the appointment of a commission, consisting of Sidney Lawrence, L. S. Viele, George T. Pierce, Andrew G. Chatfield and John T. Bush. This commission made its investigation in the year 1846 and travelled over the Erie and other canals taking testimony. Scores of witnesses were examined and the testimony fills 1200 printed pages and is known as Document 100 of the Assembly of 1846. The investigation was conducted in a judicial manner and revealed many flagrant abuses of public trust and attempted fraud, but the Commission presented no specific charges against individuals which were grave enough to warrant indictment.

It is impossible in a review like the present to enter into a discussion of all the matters involved in such an investigation. Human nature is the same the world over and many evidences of fraud have been disclosed from time to time in canal construction in the State, and especially so in the construction of the Genesee Valley canal and in the construction of the new channel in the Black Rock Harbor under the improvement authorized in the year 1835, which it was claimed did not include new work of that character.

The Black Rock Harbor was begun a few days before the great storm of October 18, 1844, which brought with it the greatest flood in the history of Buffalo and submerged the lower part of the city and carried away 210 feet of the Bird Island Pier. It was claimed that the commissioners tacitly permitted the Superintendent of the Western Division to repair the breach in the pier without authority and that more than \$17,000 were expended before the work was stopped; but no prosecution followed. The commission found that there had been a squandering of public funds in

the construction of the locks at Lockport through collusion of the Superintendent and contractors. This investigation had a salutary effect on the public mind and served as a check against future collusion between officials and contractors.

In 1852, resolutions were introduced in the Senate and Assembly authorizing the appointment of committees to inquire into and report in regard to grounds for investigating into alleged frauds in the letting of canal contracts. This gave rise to a spirited discussion on the part of members from various parts of the State, and especially on the part of Hon. Israel T. Hatch, of Erie County, who, among other things, said: "Good faith, common honesty, and public duty, all required that the work should be let and prosecuted with integrity and for the best interests of the State. Whether it has been done so or not, is the question on which investigation and enquiry are now demanded." An investigation did not immediately follow, but this opinion has been generally entertained ever since by all true friends of the canals.

In 1871 the Legislature had under consideration the matter of abolishing the office of the Superintendent of Repairs and conferring his duties upon the commissioners. On that occasion the Hon. James Wood addressed the Senate. In his remarks he said that the system of keeping the canals in repair was "not the measure of any political party, but was the result of the efforts of both," and, he added, "of all parties."

In 1873 the State Treasurer, the Hon. Thomas Raines, appeared before the Canal Committee of the Assembly and called in question the unlawfulness of certain expenditures that had been made by them for repairs and structural work which were the subject of investigation in the Legislature. There had been such mismanagement in canal affairs that State officials in any way identified with their administration became involved and were desirous of exculpating themselves from unjust accusations and took occasion when before legislative and other committees to lay before them their views.

Complaints were made of extravagance in canal expenditures, and an effort was made to reform the administration by a change in the system, which was not accomplished until the Constitutional amendment proposed in 1875 and approved in 1876, abolishing the office of Canal Commissioner and creating the office of Superintendent of Public Works. This was a result of the important investigation conducted by the Tilden Commission in 1875. This commission revealed extravagance and a squandering of public funds through the connivance of contractors and officials in their failure to comply with the requirements of the law. Thaddeus C. Davis, a canal appraiser, was indicted for conspiracy to defraud the State. Alexander Barkley, a canal commissioner, and four section or division superintendents, were also indicted; and Francis S. Thayer, auditor of the Canal Department, was suspended from office for unlawful traffic in canal certificates and other branches of public trust. The report was laid before the Legislature of 1876 and was followed by a proposed amendment to the Constitution, which abolished the office of Canal Commissioners and created the office of the Superintendent of Public Works, to be appointed by the Governor. The amendment was approved at the general election of that year. Other investigations were made from time to time for the purpose of discovering suspected frauds and in the hope of remedying abuses in the administration of canal affairs. In 1881 a legislative committee made inquiry into terminal charges which were alleged to be excessive, and into the system of insurance rebates in operation, commonly known as scalping. Still later an Assembly Committee was authorized in 1891 to inquire into canal affairs for eleven years prior thereto and reported in February, 1892, that it did not find any misappropriations of public moneys and wholly exonerated those in charge of canal affairs.

The most important investigation in recent years was that authorized by an act passed in 1898, whereby Governor Frank S. Black appointed a commission, of which the Hon. George Clinton was chairman. There were associated with him six other commissioners, and they were aided in their

investigations, which continued for several months, by the Hon. Abel E. Blackmar, their counsel. Mr. Clinton for many years had been and is still recognized as the ablest and foremost advocate of canal improvement in the State, and Mr. Blackmar has distinguished himself as counsel in drafting many of the most important constitutional and statutory canal measures. Mr. Clinton's long familiarity with canal affairs in this State enabled him to conduct a judicial investigation into the various allegations of fraudulent expenditures of moneys under the nine million dollar Referendum measure. The commission made a most searching investigation into contracts, prosecution of the work and other phases of the nine million dollar improvement. In their report they criticised the State Engineer and Surveyor and the Superintendent of Public Works, and found that the appropriation was inadequate for the completion of the work in accordance with the plans adopted for its prosecution. They found that there had been extravagance and improper certification in some instances of quantities and character of material excavated, but that the work in the main had been well done and no frauds of the character of those disclosed in prior investigations were discovered, involving officials and contractors.

The Clinton Commission recommended a continuation of the work after all the conditions had been thoroughly studied and the cost of completion was definitely ascertained. The report contained the important statement that "the entire cost of construction, enlargement and maintenance of the canal up to 1885, was \$102,345,123, while the total tolls received were \$134,648,900, to which could be added the enormous aggregate representing their indirect influence on the prosperity of the State." This report was referred by Governor Theodore Roosevelt to Judge Edwin Countryman of Albany to determine whether or not civil or criminal proceedings ought to be instituted against any State official and the referee found adversely thereto. In framing the canal Referendum of 1903, which was introduced in the Senate by Senator George A. Davis of Erie County, Chairman of the Canal Committee of the Senate

and in the Assembly by Assemblyman Charles F. Bostwick of New York, extraordinary precaution was taken to avoid the possibility of a repetition of such fraudulent acts, as had been committed under prior canal measures, and special attention was given to the matter of requiring accurate certification of the kinds and quantities of material excavated. Its framers believe that it is impossible for contractors and officials to perpetrate such frauds as have heretofore been the subject of investigation by commissions in this State.

Under the lax business methods prevailing during the periods of canal construction and enlargement, it was hardly possible to avoid extravagance and in some instances perversion of State funds in improvements of such gigantic proportions as were involved in the construction, improvement and enlargement of the canals of the State, whose aggregate length was, approximately, 927 miles. This will be more apparent when we consider that this work was carried on for more than half a century under changing parties, whose purposes were political rather than commercial and economic. And still the waste of public moneys has been small in comparison with extravagance in other public improvements and railway construction. When subjected to the scrutiny of legislative investigating commissions as in 1846, 1876 and 1898, and the facts were fully brought out, much of the alleged wastefulness of public funds was found to have been made in carrying forward improvements and contending with natural forces, such as freshets, washouts, quicksands and the action of the water in various long levels and in aqueducts, which no man could foresee, and thereby guard against, because the problems involved were largely new and the structures more or less experimental.

There were other canals wholly or partly operated in this State in addition to those already mentioned, such as the Delaware & Hudson canal, 106 miles long with a prism 28 feet wide at the surface, 20 feet at the bottom, and 4 feet deep, over which passed boats 70 feet long drawing 3 feet of water and carrying 30 tons; the Junction canal, 18 miles long, extending from Elmira to Tioga Point and costing

\$530,637; and the Shinnecock & Peconic canal across Long Island.

Many canal companies were incorporated from time to time. Most of these were eventually absorbed in the larger undertakings of the State and did not play a very important part in its commercial development.¹

The proposition to build a Niagara Ship canal was opposed by the people of New York, and the auditor in his reports for 1865 and 1866 presents the arguments against that proposition. A bill passed the House of Representatives in 1865, authorizing a loan of six millions of dollars at 6 per cent. to any company incorporated in any State that would undertake the construction of a ship canal from Lake Erie to Lake Ontario; and the President was authorized to appoint engineers to enter upon and take possession of lands and waters within the territory of this State and to exercise the right of eminent domain without the consent, and if need be, against the will of the Legislature and to transfer all the privileges and franchises so acquired to such corporation.

This was a most extraordinary proposition, in view of what New York had done and was then doing to transport the tonnage of the Great Lakes to the sea without any financial assistance from the Federal Government, and in face of its repeated refusal to make any appropriation towards the expense of construction or enlargement of the Erie canal. It was interpreted as an effort to build up rival routes of transportation within New York and Canada at the expense of our canal interests, which would divert commerce away from the port of New York to Montreal. The opposition was so pronounced that the scheme failed and the Niagara Ship canal was never built. This illustrates, however, the problems that were constantly arising to perplex and annoy canal advocates in this State.

In addition to the legislative acts and constitutional provisions heretofore mentioned, there were many others, some of less import, relating to various matters that arose

1. Reports of some of these are given by Whitford in his "History of the Canal System of the State of New York."

from time to time along the Erie, Champlain, Oswego and lateral canals. In volume I of the "History of New York Canals" already cited, may be found a list of a large number of such acts; it would extend the bounds of this paper too far to give a resumé of them. That remains for the historian of the canal system of the State, when its definitive history shall be written. A study of these acts shows the trend of public sentiment in this State for more than a century, setting strongly in favor of the construction and operation of a system of waterways that touched the remotest parts of the State and brought many outlying counties into water communication with the metropolis. We have seen that many of these acts were the result of public sentiment expressed in memorials, petitions, public meetings and resolutions of commercial assemblages called to consider the questions involved as they arose from time to time.

The library of the Buffalo Historical Society, the State Library, the large libraries of New York City, and other libraries of the State, as well as several commercial libraries such as those of the Board of Trade and Transportation of New York, the New York Produce Exchange and the Chamber of Commerce of Buffalo, and many private libraries, altogether contain a vast amount of manuscripts and pamphlets bearing on this important branch of the history of the State. Nearly every public citizen from the Livingston family down to the present has been in some way associated with canal development in this State. Inland navigation was a favorite subject of conversation among the early settlers and historic families of this State, who were familiar with conditions existing in the Netherlands and other parts of Europe where waterways were in successful operation. Among these were such men as Peter Van Brugh Livingston, President of the Provincial Congress in 1775 and Philip Livingston, member of the Continental Congress in 1774. He had been made acquainted with inland navigation in the Netherlands through the reports of one of the members of the family who had visited them. The papers, letters and documents of the period

abound in references to the possibilities of waterways between the Great Lakes on the West and the Hudson river on the East, and the advantages to accrue to the people of the State from their construction and operation. Information in regard to canal construction in Europe was eagerly sought after and tours by prominent citizens of the Province and State of New York were made, with reference to ascertaining definite knowledge as to the methods of construction, size of prisms, locks and manner of construction of aqueducts, embankments and other parts involving engineering skill. Attention has already been called to some of these matters. As the work progressed, interest increased in the matter of canal construction. Tours were made on packet-boats over the eastern and western parts of the State, and the passengers were greatly interested in watching the operation and studying the construction of locks and aqueducts. The small packets with their loads of passengers, glided along over the waters of the canal without interruption, except at the locks, through fertile country which was being rapidly settled.

In 1822 a tourist in describing a part of his journey from New York to Niagara Falls and return says:

"The next morning we took a boat at Utica for Montezuma, and at 10 o'clock a. m. the next day we reached the place of destination 96 miles. We immediately embarked on board of a small boat—entered the Seneca river by a lock—passed into one of its inlets, called the Clyde river, formed from the confluence of the Canandaigua outlet and Mud creek at Lyons, and navigated it until we arrived at Clyde—distant 15 miles by this route from Montezuma, and 12 miles by the canal when completed. . . . At Clyde we entered the canal by a temporary wooden lock, and took passage in a canal boat. At Lyons, nine miles, we changed to the Myron Holley, a boat of 40 tons, drawing eight inches of water, and replete with elegant accommodations. We lodged that night at Palmyra, and the next morning we arrived at Heartwell's basin in Pittsford (eight miles from Rochester), where the present navigation of the canal terminates."¹

The effect of the completion of the canal upon transportation is evidenced by the fact that the transportation of

1. Letter signed "W. G.," dated Saratoga Springs, 20th June, 1822, printed in pamphlet form entitled "Great Western Canal."

merchandise from Philadelphia to Pittsburg fell from \$120 to \$40 a ton in 1822. The reduction of the cost of transportation in this State has already been stated.

The interest taken in the outlying counties of the State in the construction and extension of its lateral canals is well illustrated in a resolution of the Board of Supervisors of the County of Tioga adopted on November 26, 1859, which was formulated by the Hon. T. H. Todd, Silas Fordham, and P. J. Joslin. It had a wide circulation in Tioga and adjoining counties. After a recital of the surveys for the proposed extension of the Chenango canal to the North Branch canal at the State line, "through a country already rich in the products of the forest, of agriculture and of other branches of industry and only wanting in the facilities of transportation," the resolution reads as follows:

"The proposed addition to the Chenango canal is but a short link of less than forty miles, which is to connect the great canal systems of two great states thus carrying out the original designs of those who projected the Chenango canal, and giving it at length an opportunity to realize their predictions of its utility and income.

"It has become almost an axiom among the friends and projectors of works of internal improvements, that it is the long lines of canals or railroads, works giving opportunity for interchange of commodities between large extents of country, which pay. Now construct this small link, and we have an unbroken canal navigation from the Hudson river at Albany and Troy, and Lakes Champlain and Ontario, on the north, to Chesapeake and Delaware bays on the south. We open a route for traffic not merely between the interior portions of the two great states of New York and Pennsylvania, and we reach also East and West Canada and Vermont on the north, and Maryland, Delaware and Eastern Virginia on the south, and all this without the necessity for a trans-shipment. Who can doubt that with the commerce created by the interchange of the productions of these vast regions floating on her bosom, the Chenango canal, including the little addition we propose, would become not only useful to the people of the valleys of the Chenango and Susquehanna and of the State generally, but profitable to the State treasury."

One of the great objects originally intended to be accomplished by the construction of the Chenango canal, is shown

by the public documents of that day to have been an interchange of the mineral productions of our own State for those of Pennsylvania. Exactly by what channel this was to be effected was not then understood. A few years thereafter, the construction of the North Branch canal of that State, was authorized by the Pennsylvania Legislature; a work long delayed by casualties and financial embarrassments, but now at length finally completed and in operation to the southern line of New York. Thus the opportunity is presented for carrying out the great leading object of the Chenango canal—of making the connection without which it cannot be said to be complete.

The sentiment existing half a century ago as to this extension of the New York canal system, is well shown by the following extract from the resolution of the Tioga County Supervisors, already cited :

“In the meantime, inducements for engaging in this work, which could not then have been foreseen, certainly not fully realized, have been developed and accumulated. The canal system of Pennsylvania has been greatly enlarged and her resources rapidly developed. Her coal trade, then in its infancy, has become immense. The coal fields by the Susquehanna valley, then scarcely known, except to a learned few as an interesting geological feature, have been not only extensively opened, but penetrated by the North Branch canal, and thus practically brought to the borders of our own State, offering for our use a fuel illimitable in quantity, in quality unsurpassed. It wants but a small outlay to allow it to float on through the Chenango, Erie, Black River, Champlain, and other canals, to the central, northern and eastern portions of our State, to warm our hearths, supply our furnaces and forges, and propel our steamboats, cars, and machinery of every description. In exchange for it, Pennsylvania wants not one dollar in money. She wants our iron ore, our limestone, our salt, our gypsum, our hydraulic cement, our surplus agricultural products. The boats that bring her coal to us, will take these back to her. We have, of most of them, an inexhaustible supply upon the very banks of the Chenango canal. Shall we not open the communication, and allow this exchange? Pennsylvania has done her part. Shall we not do ours? Shall New York not accept her sister's proffered embrace?”

XVI. NATURAL WATERWAYS — ABOLITION OF TOLLS.

Steamboat navigation of the Hudson river was begun in 1808 and grew in importance and magnitude from that time forward until the volume of commerce on that river exceeded the tonnage of the Ohio and the Mississippi rivers. The official (Government) report for the year 1907 gives the tonnage of the Hudson river at 16,403,642 tons, that of the Ohio river at 11,427,784 tons, and that of the Mississippi river at New Orleans at 4,036,594 tons.

Steamboat service on the Hudson river has been continuous from the building of the Clermont in 1808 and of a very high order of efficiency. The latest and one of the most commodious passenger vessels on any water of the world is the Henrich Hudson, of the day line between Albany and New York, licensed to carry 5,000 passengers.

All remember the famous Mary Powell, queen of steamers, which for many years held the world's record for speed, she having made the (then) phenomenal run of 26 miles per hour. The Hudson river steamers have been the best in the country, and in addition to those mentioned have included the Dean Richmond, Daniel Drew, New York, Albany and others celebrated for their sumptuous furnishings and equipment. The passenger service on the Hudson river is still large notwithstanding the fact that it is paralleled by excellent railway service on each side. The Hudson river, with its commodious and superbly equipped steamboats and with its picturesque scenery and towering palisades, and its historic places, has long been almost as popular and as celebrated as the Rhine with its historic castles, populous cities and flourishing vineyards. The tercentenary of its discovery is to be celebrated in an appropriate manner by the city and State of New York in 1909.

From a very early date Lake George has formed an important link in the route of military expeditions and of travel between Albany and Lake Champlain. It was discovered by Father Jogues in 1646 and named by him St. Sacrement. It has been likened by travelers to the Lake of Como, but its circumjacent mountains are not as lofty nor

are their summits capped in perpetual snow nor their bases clad in luxuriant sub-tropical vegetation. Several early expeditions were made through this valley and canoes and other small water craft were used for passenger service over its waters. It is uniquely located in the eastern foothills of the Adirondack mountains, with precipitous headlands projecting into its waters, which are deep and clear, and it is the favorite resort for the wealthy and some of the literary people of this State. On its shores have been built the summer homes of J. Fenimore Cooper and other writers. For many years there has been maintained an excellent passenger service through Lake George and at present there is on its waters a small boat known as the Elide, which has made the phenomenal speed of 40 miles per hour, thereby winning the record for being the fastest boat in the world.

Steamboat navigation began on Lake Champlain in 1809 and grew in importance and magnitude from that time forward until the volume of commerce transported over it and through the Champlain canal in the year 1890 amounted to 1,520,757 tons. The Government report for 1907 gives the tonnage at 676,051 tons. This decrease was due to the disappearance of the fleet of sloops and schooner-rigged canal boats which for many years carried on an active commerce on that lake and transported the tonnage between New York and Lake Champlain ports before the building of the Delaware and Hudson railroad along its west shore.

From the time of its discovery in 1609, its importance as a highway between New York and Quebec grew in popular favor and the tides of trade and travel passed to and fro through the picturesque Champlain valley to the portage between Skeensboro, now Whitehall, and the Hudson river, until the opening up of the Champlain canal in 1822, which effected a continuance of water communication between Lake Champlain ports and New York City. From the time of the building of the first passenger steamboat on that lake, in 1809, until the present, there has been maintained a continuous passenger service by the Champlain Transportation Company, which has owned and operated commodious steamboats and whose route for several years extended from

Whitehall on the south to Rouses Point and even St. Johns, in Canada, on the north. Charles Dickens and other tourists have commented very favorably upon the excellence of that service and the picturesqueness of the Champlain valley. During a portion of that period four large passenger vessels were in commission and active service, running the entire length of the lake, day and night. The tercentenary of its discovery is to be celebrated by the States of New York and Vermont in July, 1909.

Along the northwestern border of the State flows the St. Lawrence river, with its thousand islands, the popular resort for the people of this and other states, where there are maintained scores of fine steam yachts, plying upon its waters. It forms a highway between Lake Ontario ports and Ogdensburg, whose commerce at one time was quite extensive.

In Central New York are the several lakes, already mentioned, upon whose waters have been and are now maintained small passenger vessels, and these are becoming more numerous as the population around them increases. In the western portion is Lake Chautauqua with its flotilla of small vessels and its popular steamboat service. On the shores of this lake is located the world-famed Chautauqua Assembly grounds, the resort of students and scholars of many states.

In the Adirondack mountains are several hundred small lakes, many of which are the resort of the people of the metropolis. These vary in size from half a mile to several miles in length and some of them have an elevation of 2,000 feet above the level of the sea. On their waters are canoes, launches and other craft, that transport hundreds of passengers yearly over their waters. In the southeastern part of the State are the Catskill, Schoharie, Delaware and Susquehanna rivers, which before the construction of railroads formed highways of more or less importance in the building up of the Empire State.

From a very early period Long Island Sound has had an active and an extensive commerce. It is an arm of the sea and over its waters has been maintained an extensive

coastwise commerce between New York and the ports of Connecticut, Rhode Island and Massachusetts. The Government has expended large sums of money in clearing the channel at Hell Gate, so that some of the largest coastwise steamships may now safely pass over the Sound down the East river into the harbor of New York. The port of New York is one of the finest ports in the world. In its upper and lower bays may be seen the merchant marine of many nations. Through its harbor across the high seas are maintained many trans-Atlantic steamship lines, that annually transport to and from the metropolis thousands of passengers and upwards of 20,000,000 tons of freight. Its coastwise and domestic tonnage is far more extensive and is said to aggregate 150,000,000 tons annually. If it has not already done so, the volume of its commerce at the completion of the barge canal will undoubtedly surpass the commerce of London. Therefore I may be warranted in repeating a statement made in January, 1908, in reply to a report of a State official—suggesting that the barge canal project was the result of a short-sighted policy on the part of the State—in my advocacy of the prosecution of that undertaking in accordance with the plans already decided upon, which statement was as follows:

"Having put our hands to the plow, let us not look backward, but press on to the completion of this important public improvement, for if we divide, we may lose the commerce that we now have and which has contributed to the upbuilding of the cities, towns and villages of this State, and which has given us the metropolis of the western hemisphere whose commercial achievements will be given representation as time goes on under the masterly touch of some Tintoretto in adorning her stately halls and commercial palaces, with Apollo on the chariot of the sun relating his experiences at the great marts of trade after his circuit of the globe to the Council of the Gods, who pronounce New York the Sovereign Emporium of the world."

The conception and the magnitude of the barge canal were the result of an evolution of canal agitation extending over nearly a quarter of a century. The canal commerce declined somewhat in the '70's and it was thought that the

abolition of tolls on canal traffic would stop the further decline and hold the enormous volume of commerce for the canals, carried over them for a score of years prior to 1880.

From an early day the hope was entertained by the projectors of the canal system that the revenues derived from tolls would be such as to defray the expenses of canal construction and operation. Governor De Witt Clinton, as early as 1818, said: "There can be no doubt but that light tolls on our own commodities and high transit duties on foreign products, will, in a few years, not only accumulate a fund for the extinguishment of the canal debt but be a prolific source of revenue for the general purposes of government." Governor Clinton referred to the same matter in his subsequent messages, and the revenues from canal tolls jumped by leaps and bounds so rapidly that they exceeded his most sanguine expectations. In 1826, he said: "It is obvious that the work will in a few years pay for itself, or, in other words, that the income will defray the expenses of erection."

Governor William L. Marcy in 1833, Governor William H. Seward in 1839, Governor John Young in 1847, Governor Washington Hunt in 1851, and Governor Horatio Seymour in 1853, and on several later occasions, each and all spoke in laudatory terms of the benefits accruing from canal transportation in this State and with appreciation of the increasing revenues derived from tolls imposed on tonnage on the canals.

Canal advocates in various parts of the State united in conventions and presented petitions and memorials to the Legislature to abolish tolls on canal traffic, as they had on railroad traffic in 1851. Up to that time the State had realized a handsome revenue over and above the cost of construction and operation of the canal system of the State, and it was argued that there was no justice in continuing the burden upon canal tonnage to the detriment of the commercial interests of the State. There had been an evolution in public sentiment in regard to the fiscal canal policy of the State as there had been in regard to canal extension and improvement after the original canals were completed. Com-

mercial bodies and public citizens generally throughout the State took a broader and more statesmanlike view of the function of the canal system and no longer considered that it must be a direct paying investment *per se*; that the indirect advantages accruing from cheap transportation to shippers and the public at large were such that the State was benefited in many ways from the low freight rates due to transportation over the Erie, Champlain and Oswego canals. It was no longer essential that those canals turn into the treasury a profit to justify their continuance and operation. Accordingly the movement for free canals assumed tangible form and proportion the more the matter was discussed.

As early as 1850, the citizens of Buffalo presented a memorial to the Canal Board in relation to the reduction of canal tolls as a result of a meeting of the forwarders and shippers engaged in the commerce of the lake and canals, held at the American Hotel, Buffalo, December 10, 1849, over which Dean Richmond presided and R. C. Palmer acted as secretary. In that memorial was reviewed the tariff of tolls from 1822 to 1849, and there were presented the arguments which seemed to them controlling in favor of a reduction of the tolls then imposed upon canal traffic, of approximately 20%.

In 1851, in a special message to the Legislature, Governor Hunt said: "The importance of the trade of the Erie canal to the prosperity of the State is conceded by all. No other public work of any age or country has contributed so largely to the welfare and happiness of a whole community. Every interest in the commonwealth has felt its vivifying influence."

In 1851, Mr. James L. Barton of Buffalo argued strongly in favor of such reduction and laid especial emphasis on the fact that tolls were abolished on railways and there was no justice in maintaining a tariff of tolls so high as to divert the canal tonnage to the railways.

Other bodies presented similar memorials and these, following as they did upon the release of railroads from the payment of tolls on railway tonnage, were taken into consideration by the Canal Board, which adopted a new tariff

of reduced tolls in 1852. The Board made a further reduction in 1858, but restored them in 1861 and 1862.¹

On March 18, 1857, Commissioner Fitzhugh submitted to the Senate a report of the Canal Board in reply to a resolution of the Senate, calling, among other things, for a report on the tonnage and tolls upon all property which had

"passed from tidewater to Lake Erie, out of the State, and from Lake Erie to tidewater; and that which had passed through the whole line of the Erie canal, and that which had passed through the Welland canal during the last five years; also what increase of tolls would have been produced, had all such property passed through the whole line of the Erie canal; also what effect on the tolls of the State would be produced by the discrimination and imposition of tolls on all such property, whether passing through the whole length of the Erie canal, or through the Welland canal, or on the railroads of the State; and also what articles of commerce there are passing from or to tidewater, and Lake Erie, upon which the present rate of tolls may be increased or decreased, and thereby increase the revenue."

That report included tabulated statements of the information required, which throws light upon the trade movements during that period in this State and the effect of the Canadian canals upon New York canal traffic. It institutes an interesting comparison between the tolls imposed upon merchandise on the Erie canal and that imposed upon the Welland and Oswego canals, and shows a difference of several cents a ton in favor of Oswego, on account of its being 155 miles nearer tidewater.

In order to secure the 90c profit per ton on all commodities transported by the Oswego route, it would be necessary to have legislative protection which would give Oswego and Canada the monopoly to the disadvantage of residents of the western counties of the State. He showed further that Oswego would not be able long to maintain the advantage, owing to the competition of Canadian canals.

On September 1, 1859, a convention was held at Rochester of delegates from various counties in the State, for the

1. "Annual report of the Auditor of the Canal Department . . .," Albany, 1867, p. 28.

declared purpose of "rescuing the canals from the ruin with which they were threatened," "by exposing and resisting 'the Railroad Conspiracy' for discrediting the canals and diminishing their revenues, with a view of bringing them under the hammer by adopting measures for counteracting the ruinous competition with railroads, permitted by the State, and instituted by railroad directors for the express purpose of breaking down the credit of the canals."

David R. Barton, Esq., of Rochester, was appointed chairman and George R. Babcock, H. J. Sickles, G. D. Lamont, Alfred Ely, L. B. Crocker, Jas. J. Glass, A. E. Culver, Henry O'Rielly and J. Myers, vice-presidents.

Able addresses were made by Henry O'Rielly of New York, A. M. Clapp of Erie, A. H. Hovey of Syracuse, Gen. William H. Adams of Lyons, George R. Babcock of Buffalo, Carlos Cobb of Buffalo, Hon. Ensel Bascom, and others. The debates on that occasion were learned and replete with important information relative to the methods of transportation, the importance of the New York canal system in its commercial development and the imperative duty of the State to maintain it notwithstanding the rivalry and hostility of railway officials, and railway interests throughout the State. This gathering, and the New York State convention called for a similar purpose, that convened at Utica on September 15, 1859, were two of the most important canal conventions held in this State prior to the Civil War. The Utica convention was presided over by Hon. Henry Fitzhugh of Oswego, and among its members were such well-known canal men as Albert Sawin of Erie, T. T. Flagler of Niagara, James Gallery of Monroe, W. H. Shankland of Onondaga, A. P. Seymour of Oneida, W. Clark of Montgomery, W. T. Cuyler of Livingston, L. D. Collins of Albany, John McVean of Dutchess, D. H. Eaton of New York, Wm. Montieth of Buffalo, J. E. Lyon of Oswego, S. G. Chase of Albany, and J. L. Lewis of Yates.

In the Utica convention addresses were made by the Hon. Ansel Bascom, the Hon. Thomas G. Alvord of Onondaga, B. F. Cooper, Esq., of Utica, the Hon. D. C. Littlejohn of Oswego, Senator Prosser of Erie, the Hon. Henry B. Miller

of Buffalo, Henry O'Rielly of New York, Carlos Cobb, of Buffalo, and others. Every phase of the canal question relating to the enlargement, reduction of tolls, cost of transportation, and taxation for canal improvement, were considered in these two conventions. They did much to emphasize the importance of artificial waterways of the State and to arrest the encroachments of railroad domination of political and legislative bodies. No one can read the addresses made on those occasions without feeling that the canal interests had at that critical period some of the foremost citizens of the State as champions, and their names ought to be held in grateful remembrance.

In 1862, Gov. Edwin D. Morgan declared that "the railroads have seriously diverted business from the canals," and he gave statistics to show the decrease of canal traffic since the abolition of railroad tolls in 1851. In his message to the Legislature, he strongly urged the restoration of railroad tolls to prevent further diversion of canal traffic.

In 1865, Governor Reuben E. Fenton, without protest, contented himself with stating that: "Quantities of produce have been diverted from the canals to the speedy lines of communication [railroads] thus swelling their business."

In 1866, Governor Reuben E. Fenton in speaking of the harbor of New York and the prosperity of the State due to canal traffic, said: "The termination of the grandest system of internal water communication in the world constrains by irrevocable natural decree the immense and constantly increasing productions of the West to her inland ports."

In 1870 the Canal Board with the consent of the Legislature reduced the tolls below the rate prescribed in 1852. Competition for freight between the several railroads, reaching out for the traffic of the West, reduced the rates of railroad traffic below any point theretofore reached and canal commerce was diverted to railways. The Canal Board declared that "the tolls shall be adjusted to attract and not to repel freight seeking transportation."

In 1871, Governor John T. Hoffman, in his annual message to the Legislature, says: "The business of the canals suffered during the past summer from a great reduction of

railroad rates of freight, temporarily made by rival companies in a struggle for the western trade."

In 1873 a concurrent resolution was passed by Senate and Assembly whereby the Legislature assented to the reduction of canal tolls not exceeding 50% below the rates prescribed by the toll sheet of 1852.¹ The expenditures for lateral canals during the year 1873 exceeded their income by \$231,449, and that deficit became a charge upon the revenues of the Erie and Champlain canals. The reduction of tolls made it necessary to pay a portion of the canal enlargement debt from the proceeds of deficiency bonds running ten, fifteen and eighteen years.

In 1874 there was adopted an amendment to the Constitution limiting the expenditures in any one year on the canal to the gross income of the previous year. Prior thereto the gross income had been upwards of three million dollars and there seemed to be no serious objection to the proposed Constitutional limitation. The possibility of the income falling below the cost of repairs and maintenance was not thought of. The Canal Auditor says that: "The effect of the amendment on the future of our canals does not appear to have been duly considered in all its bearings when originally proposed." But "it was exceedingly unfortunate in view of the diminished and diminishing revenues."²

Governor Tilden, in his message to the Legislature in 1875, in referring to the policy of the State towards its canal interests, which he characterized as a trust for the million, stated that that policy was not designed "to make revenue or profit for the sovereign out of the right of way," and that the act repealing railroad tolls was in accordance with this policy.

In the year 1876 the tonnage on the New York canals was approximately one third of the aggregate tonnage on the New York Central and Erie railroads, whereas in the year 1873 it was more than half of the aggregate tonnage of those two railways.

1. Canal Auditor's report for 1873.

2. Canal Auditor's report for 1875, p. 18.

The Canal Auditor in 1877, in his report for that year, says:

"For the past three years the Canal Board of the Legislature appear to have been convinced that in consequence of the sharp competition of the railroads and the efforts of neighboring states to increase their trade in western products, it was hazardous to attempt to realize from the tonnage of the canals any more revenue than would barely suffice to pay their running expenses, leaving the principal and interest of the canal debt to be procured by taxation."¹

It is said that the Superintendent of Public Works, in 1881, submitted to the Canal Board plans and specifications and permit to allow the New York Central, and New York, West Shore & Buffalo Railway Company to occupy canal lands at Little Falls, and that the Canal Board assented thereto. Captain William C. Clark of Constantia, N. Y., who for a generation has been one of the most strenuous canal advocates of the State, characterizes that act as the commencement of "the confiscation of canal lands for railroad purposes."²

The period of greatest prosperity on the canals was that from 1868 to 1874, at which latter date the tonnage began to decline owing to railroad competition.

In 1877, the Hon. James W. Husted made a strong speech in the Assembly in favor of the reduction of canal tolls in which he said: "Freedom of the canal is a measure not only of justice, not only of commercial supremacy, not only of financial prosperity, but it is a measure of political economy." On September 20, 1877, the Hon. James Wadsworth of New York City appeared before the Board of Trade of Buffalo, over which Alonzo Richmond presided and William Thurstone acted as secretary, in advocacy of the abolition of tolls and making the canals free. His address on that occasion was replete with information relative to State, national and international questions of commerce and the functions of waterways in the colonization and com-

1. Canal Auditor's report for 1877, pp. 21, 22.

2. Report of Canal Commissioners for 1877, p. 13.

mercial development of different countries. Among other things, he said:

"The canals of the State are the primal source of our material prosperity, and should be our main reliance for its permanent increase.

"All Europe is engaged today in a vast controversy which narrows itself down to two single propositions:

"First. Shall the Bosphorus be opened to the navies as well as the fleets of the world, or shall it be kept closed?

"Second. Shall the Suez canal remain the property of French and English speculators, subject to the caprices of an Egyptian viceroy and a Turkish porte, or shall it be internationalized and become the common highway of the nations?

"The publicists of Europe unite in saying that these straits ought to be made free. The Erie canal is the American Bosphorus—it is our Egyptian Suez—and with this advantage to my argument, that they are not alien but sister states entitled to equality of privilege under the Constitution that demand this freedom of passage.

"Again, in the work which it is immediately doing for human kind, it is of infinitely greater significance and importance than the Bosphorus and the Suez together."

After reviewing briefly the condition of things during the early years of navigation over the New York canals and what they had accomplished, he said further: "The canals of the State are the primal source of our material prosperity, and should be our main reliance for its permanent increase."

He closed his argument in an appeal to the Board of Trade of Buffalo "to inaugurate a great policy, which will be as beneficent, as it will be everlasting, and require of your law-makers the entire freedom of the canals of the State."¹

On February 27, 1878, Hon. Isaac I. Hayes of New York, the Hon. Harvey J. Hurd of Erie, and the Hon. Thomas J. Alvord of Onondaga, all members of the Assembly, addressed the committee of the whole upon pending

1. "Free Canals. An address delivered before the Buffalo Board of Trade, September 20, 1877, by the Hon. James Wadsworth, of the City of New York. Printed for circulation by the Low Tolls Association of Western New York," Buffalo, 1877.

concurrent resolutions offered by Mr. Hayes proposing an amendment to the Constitution abolishing tolls upon the canals. In a formal and able manner were presented the arguments in support of those resolutions, and special emphasis was laid upon the indirect benefits which had accrued to the State from the business of the canals during the preceding 40 years. It was stated that they were nothing compared with what would be realized in the future if the canals were made free.

In 1878, Governor Lucius Robinson stated that boatmen received better returns in 1877 than they had received some years prior thereto.

One of the most convincing arguments in favor of the abolition of tolls was made by ex-Governor Horatio Seymour before the Canal Committee of the Legislature of New York, on April 9, 1878. Among other things he said: "The sum of tolls paid last year was so small that it will not pay enough to keep our canals open if great care is not used. There must be no waste. Every dollar spent must be put where it will be of the most use. The Erie which pays the greater share of tolls must keep up, for if that stops, all other canals must close."

On April 11, 1878, Alonzo Richmond of Buffalo presented his views to the Board of Trade of Buffalo, in an address on "A Free Canal essential to the State's Prosperity, with some Ideas upon Internal Navigation." He called attention to the fact that high canal tolls foster rival routes in a manner which could leave little else to be said upon that subject and which may be used with equal effect in combating undue restrictions on transportation today. He called attention to the carrying capacity of the Erie canal and of its possible increase by the adoption of the Illinois system, which consisted of a canal steamer and barge or barges forming a fleet of boats and moving over its waters freed from tolls and other restrictions as freely as they move along rivers. This was prophetic of what is to take place on the barge canal, free from tolls, and upon whose waters fleets of boats, much like those of the Illinois system, will transport its vast tonnage.

On June 10, 1878, Senator William Windom of Minnesota stated in his speech in the United States Senate that "Cheap water transportation alone enables us to sell our surplus in the poor markets of the world," and that farmers of the interior of this continent were therefore wholly dependent upon the water routes for the sale of their surplus grain.

Among the interesting proposals prior to the abolition of tolls was a proposition "favoring the introduction without expense to the State, of an improved system of towage upon the canals, by a railway to be constructed subsidiary thereto."

Many well-known men in various cities of the State were incorporators of the Buffalo, Syracuse & Albany Railroad Company, incorporated to tow boats, at a charge fixed by the State, along its canals from Buffalo to Albany. It was confidently asserted that the revenues derived therefrom would not only be sufficient to extinguish the canal debt, but to pay the tolls on the canal traffic. It was argued that such a result would be more satisfactory to the people than to accomplish the same by constitutional amendment. It was asserted that five boats might be towed in a train at the rate of three to five miles per hour, each carrying 240 tons, at a reduction of 34% below the prevailing expenses of a round trip from Buffalo to Troy and return. The argument of Mr. Henry Edwin Tremain of New York, however, did not avail and the canals were not brought under railroad domination.

After the nine million dollar appropriation was made in 1895, and it was found inadequate to enlarge the canals in accordance with what was known as the "Seymour plan," it was proposed by some that it might be advantageous to the State to turn the canal properties over to railway companies, or to construct a railway in the prisms of the canals. The futility of that proposition is apparent to any one familiar with the relative cost of transportation over waterways, railways and highways which has long been known but recently determined by a well-known writer, O. Eltzbacher, who says that

"on a horizontal road, and at a speed of about three miles an hour, a horse can pull about two tons; on a horizontal railway he can pull about fifteen tons, and on a canal he can pull from sixty to one hundred tons. Therefore, from four to six times the energy is required in hauling goods by rail, and thirty to fifty times more force is expended in hauling it by road, whatever the motive force may be. Therefore, the cost of propulsion by water, whether the motive force be horse, traction, steam or electricity, is only a fraction of the cost arising from propulsion by road or rail. . . . It is therefore clear that transport by water is, and must always remain, owing to its very nature so very much cheaper than transport, be it by road or rail, that railways cannot possibly compete with properly organized, managed planned, and equipped waterways. Hence it is economically wasteful not to extend and develop the natural and artificial waterways, which a country possesses, and is absolutely suicidal and criminal to let them fall into neglect and decay."¹

This is one of the latest statements of the comparative cost of transportation over highways, railways and waterways and is undoubtedly as scientifically accurate as it is possible to be determined.

On February 28, 1879, a resolution was passed in the Assembly of the State authorizing the appointment of a special committee of five persons to investigate, among other things, the abuses alleged to exist in the management of the railroads chartered in this State, the membership of which committee was increased from five to nine by a resolution passed on March 12, 1879; and by a subsequent resolution adopted on March 27, 1879, such committee was authorized to sit during the recess of the legislature and take testimony. Mr. A. B. Hepburn was appointed chairman, and there were associated with him H. L. Dugid, James Lowe, William L. Noyes, James W. Wadsworth, Charles S. Baker, J. W. Husted and George L. Terry. That committee made its report to the Legislature on January 27, 1880, in which it said:

"It has always been recognized as one of the paramount duties of the State to provide means for the inter-communication of its people and an exchange of commercial productions. This was originally

1. "Modern Germany," pp. 236, 237.

the turnpike, which continued as the only means of inland communication until the ease and facility of water communication suggested and brought forth the canal. Connecting, by an artificial, navigable waterway, two natural bodies of water, was a long stride in advancing commerce. Its importance in public estimation can easily be realized by recalling the exultation that crowned the completion of the Erie canal, or by marking the prominence accorded in history to the man who conceived its construction. Its actual importance may be realized by marking the growth of our metropolis, as this new-born artery poured into her harbor the products of the west."

In speaking of differential rates the report further says that "New York possesses the key to the situation in the Erie canal." "The cost of water transportation from Chicago to New York determines the rate of rail transportation, and the rate of rail transportation from Chicago to New York is the base line upon which railroad rates are determined and fixed throughout the country." And further, quoting the testimony of Mr. Blanchard, President of the Erie Railroad, the committee state:

"The State holds within its grasp the great controller of the freight rate within its borders, to wit, the canal. There is not a town that is not affected more or less within this whole State, from the extreme northeast to the extreme southwest corner of it, by the canal policy and rates of this State."

"The State has contributed in aid of railroads, in round numbers, eight millions of dollars, and the various localities by donation and investment in stocks and bonds nearly thirty-one millions of dollars, for which unwise action so many of the localities are now suffering."

"The proposition to abolish the tolls of public canals and make their support a charge upon the State has received the strongest endorsement in New York and Brooklyn, demanding their solid support. Should this policy prevail, the territory bordering upon New York harbor would, according to the apportioned tax of 1879, be compelled to pay 60 per cent. of the tax for this purpose."

In speaking further on the subject of railway regulation, they say that "The competition of water-ways serves as a general regulator of rail rates"; that "competition exercises a beneficent office, and the natural laws of rivalry and trade

adjust and correct evils in the aggregate; but, as the railway is artificial, so must the restraining power that adjusts the relations between through and local traffic, between competing and non-competing points, between large and small shippers, be artificial also."¹

The effect of railway competition was such as to arouse deep interest in the movement to abolish tolls on canal tonnage, and it was the principal question that agitated the people for a decade prior to 1880. In the Constitutional Convention of 1867 much time was given to the consideration of tolls on canal traffic and that matter continued to receive much attention as shown in the official and unofficial proceedings, to which I have already alluded.

The Auditor's reports from year to year contained discussions of the fiscal features of the canal policy of the State and in some instances detailed statements were given of the revenues derived under tariffs of diminishing tolls. The operation of sinking funds was also considered and grave questions of public policy confronted each succeeding administration. Canal matters were still further complicated by charges of fraud in the administration of canal affairs and these led, as we have already seen, to an official investigation in 1875. Railway magnates took advantage of these conditions and succeeded in diverting a large amount of traffic to railways and in prevailing upon the Legislature to dispose of lateral canals.

The constitutional amendment adopted in 1874 permitted the sale or abandonment of all canals owned by the State excepting the Erie, the Champlain, the Oswego, the Cayuga and Seneca canals. By chapter 404, laws of 1877, the disposal and sale of the Chenango, the Chemung, the Crooked Lake and the Genesee Valley canals were authorized. Operation of the Chenango canal was discontinued on May 1, 1878, the Chemung canal at the close of navigation, 1878, the Crooked Lake canal on June 4, 1877, and the Genesee Valley canal on September 30, 1878.² The discontinuance of the lateral canals relieved the State for the time being of

1. N. Y. Assembly Doc. No. 38, Jan. 22, 1880.

2. Canal Auditor's report for 1877, p. 15.

9. the expense of their maintenance and operation, but was a great loss to the public who were thereafter made wholly dependent on railway transportation at a much greater cost.

Within the last three years, bills have been introduced in the Legislature authorizing surveys of one or more of the routes of the abandoned canals for the ultimate purpose of reopening them for commercial purposes.

In 1881 Senator Benjamin H. Williams of Buffalo stated in the Senate that "We cannot rely upon our railroads for the preservation of our trade. Our advantage over our sister states consists in the possession of a route which makes a waterway possible from the West to the seaboard."

Governor Alonzo B. Cornell, in his message to the Legislature in 1882, said: "The competition of railways, enlargement of the Canadian canals and the development of the Mississippi river route, were important considerations with reference to the future capacity of the canals to arrange the necessary revenue for maintenance."

One of the most effective speeches in the Assembly in favor of the concurrent resolution to abolish tolls was that made by Hon. Arthur W. Hickman of Buffalo on March 23, 1882, in the course of which he said:

"Our Canadian neighbors are mortgaging their entire earthly possessions to put their water route in condition to meet the requirements of cheap water transportation. Minnesota, Dakota, Montana and the Northwest Territories of Canada are all great grain-producing countries, whose virgin soil has scarcely been broken by the plow. Their present and prospective products are immense. They can all be reached by water. These products will follow the established channels of trade in finding a market, and will pay magnificent tribute to the place where they find it. The natural water route leads to our door. Shall we close it, or shall we receive its freight with thanksgiving and joy? A single penny is an insignificant sum, but that one penny levied as a toll on each bushel of this immense production will drive it from us. Were there no other outlet for it, that extra penny would build one, just as it has built the Welland canal and the Mississippi improvements. But there are other outlets reaching out with eager hands to clutch the coveted prize. The Mississippi and the St. Lawrence crave the trade we spurn. They are attracting shippers to their routes and accustoming them to their

ways. They are inviting the ships of the world to leave the docks of New York, and to seek their cargoes at Montreal and New Orleans. Once establish the channel of communication through these routes and you may find it difficult or impossible to restore it to your own. An oppressive toll drove the west-bound freight from the canal, and we have seen in the experience of the last year how hard it is to woo it back again from the course it has fallen into, even though the tolls have been removed. That it will come back, we believe, but it may come slowly.

"Mr. Chairman, it does not seem possible that it should be necessary to take time to convince any member of this House that it is desirable that this great western trade should come through New York, and that within our borders it should find a market and a distributing point, and that the State would be greatly benefited thereby. We make the broad claim that the present position and condition of the State is a monument to the wisdom of those who projected and completed the Erie canal, and made the commerce of the west pass through its channel. . . .

"It must be remembered that freight is an essential element in making up the price of every article sold. Every cent saved on freight enables the merchant to sell one cent cheaper, and the consumer is the party benefitted.

"Mr. Chairman, the history of the State speaks in favor of the passage of this resolution. The thinking men of the State favor it. The State officials charged with this branch of the government recommend it, and the people of the State need it.

"I trust that a wise, liberal policy towards the canals may prevail, and that the resolution may pass."

In 1882, ex-Governor Horatio Seymour addressed a formal communication to J. W. Higgins, chairman of the Assembly Committee on Canals, strongly in favor of the pending Constitutional amendment, and among other things said:

"Tolls are taxes of the most hurtful kind to the whole community. They are a form of special taxation that have been found so hurtful in all parts of the civilized world that they have been abolished to a great degree. They fall oppressively upon labor, industry and commerce; their exactions after they have once been paid by the carrier are transferred and thrown upon our mechanics and other classes of citizens.

"All would deride the folly of a city government which should impose a tax upon those who used their streets as thoroughfares or marts of commerce upon the ground that these avenues were expensive to maintain. Is there any more wisdom in the government of a State which imposes tolls or taxes upon those who use its avenues for the purpose of bringing to it articles needed to promote its commerce and its industries? While other sections are trying to divert traffic from our cities by making cheaper routes, is it wise for us to drive it away by taxation?"

It appears that railway managers were not only opposed to the abolition of canal tolls, but that they were suspected of resorting to a policy that would "so depress business during the navigable season as to make it too unprofitable to encourage the building of canal boats and vessels, and in that way gradually dissipate the equipment of a water route, and by systematic efforts so diminish the revenues of the canal as to prevent the possibility of maintaining them."¹

On November 1, 1882, the Hon. William M. Evarts of New York addressed a meeting held at the Cooper Union hall, in the advocacy of the approval of the constitutional amendment abolishing tolls. In the course of his remarks, he said:

"These humble, laborious servants of commerce that slowly kept their way after the horses that trudged the paths, are nevertheless and have been for sixty years, as important a factor in the wealth, the prosperity and in the development of the population of the State and the City of New York, as any of the proud steamers or any of the brave railroad trains that make so much noise in the world. These patient servants of your prosperity and pride are not easily discouraged, but if you will, with all other things in this State free and progressive, determine that the canals shall be choked and the boats held fast and all made dependent upon a concurrence of expenditure and receipts, without which, equal to their wants, interruption and final closure of the canals shall take place, you will be like other people who, overlooking the humble source of their prosperity, fall finally a victim to that pride which goeth before a fall."

The constitutional amendment relating to the canals, after receiving the concurrence of the Legislature of 1881-'82,

1. Canal Auditor's report for 1880, p. 13.

was approved by the people at the general election in the latter year and became operative on January 1, 1883. Thereafter no tolls were levied upon canal traffic, but boatmen were subject to such regulations as might be necessary to maintain the canals in a navigable condition. There was inserted in the Constitution at that time provision that the Legislature should annually provide for the expenses of the superintendence and repairs of the canals and for the payment of the principal and interest of the canal debt by equitable taxes.¹

The movement for the reduction and final abolition of tolls extended over a quarter of a century and was the result of the operation of the immutable laws of trade, which flourish most where freed from all restraints. Commerce like water flows through channels of least resistance and it was argued that the abolition of tolls would put our canals into the category of free waterways, over which much of the commerce of the world is transported.

XVII. PROMOTION OF VARIOUS CANAL INTERESTS.

The abolition of tolls was followed in 1883 by a slight increase in canal tonnage, but did not arrest the gradual decline in the volume of canal tonnage, which had been going on for some years. The abolition of tolls, however, materially checked the diversion of traffic from the canals to the railroads, but it is evident that other causes than tolls were also instrumental in the diversion of tonnage from the canals to the railroads beyond the reach of constitutional amendment or legislative enactment. Expressage, perishable and light freights, naturally seek the quickest route, while bulky tonnage seeks the less expensive although slower water transport. That has been the experience in all countries where railways are brought in competition with canal transportation. The abolition of tolls on both railways and canals was the result of the operation of economic laws due

1. See Section 3 of Article 7 of the Constitution as amended Nov. 7, 1882.

to trade relations existing within and beyond the confines of the State, and therefore beyond its control. Consequently it was a wise policy for the State to adapt its transportation facilities to the exigencies of trade relations and hold for it the commerce passing between the seaboard and the Great Lakes on the west, which otherwise had been more largely diverted to the northern and southern routes. From the beginning its commercial policy has been a progressive one and it has been dominated by far-sighted statesmanship. The competition of rival routes has been keen and trunk line managers have gone so far to divert the commerce of the State of New York as to establish differential rates against the port of New York, and still the tonnage of the waterways and railways of this State and the lake commerce at the port of Buffalo and the foreign and coastwise commerce of the port of New York have continued to increase and the State to maintain its commercial supremacy over the other states of the Union.

In 1862 a memorial was presented to President Lincoln in pursuance of an act of the Legislature of the State of New York passed on April 22, 1862, to adapt the canals of the State to the defense of the northern and northwestern lakes, and a resolution calling upon the Governor of the State "to take such measures as he shall deem necessary and proper for inviting the attention of the General Government to the measures proposed in the act, and their great importance to the national interests."

The Canadian canals had assumed such proportions as to arouse the feeling in this State that our canal system ought to be made adequate to accommodate vessels like the Monitor, which had shortly theretofore achieved so signal a victory on the waters of Chesapeake Bay. This led Americans to believe that the prisms of the Erie and Oswego canals ought to be increased to admit of navigation by vessels of the type of the Monitor for American coast defense along the Great Lakes. It will be remembered that this matter was considered during the progress of the enlargement of the Champlain canal. Congress took no action upon the

memorial and the canals were not enlarged as proposed in that memorial.¹

In the National Convention, held in Chicago in June, 1863, attended by Hon. Edward Bates, Attorney-General of the United States, 98 members of the Senate and House of Representatives, and delegates designated by the Governors, Boards of Trade, Chambers of Commerce, and agricultural associations in the several northern states, another memorial was formulated, expressing the conclusion reached, that "enlarged water-facilities for communication between the East and the West, both for military and commercial purposes" was a need profoundly realized. The memorialists went so far as to favor a great national highway, which they stated was demanded alike "by military prudence, the necessities of commerce, and political wisdom." This memorial deals with the question largely from a military point of view and emphasizes the importance of arming the northern frontier and the Lakes adequately, to meet, or to protect, our territory from hostile attack or invasion. In that convention were such noted statesmen as Thomas H.

1. The Hon. John M. Carson, chief of the Federal Bureau of Manufactures, in his report for 1908 to the U. S. Department of Commerce and Labor, says:

"The Canadian Government has definitely decided to construct a ship canal to connect the Georgian Bay, on Lake Huron, with the St. Lawrence River, which would greatly increase the commerce of Montreal. This Georgian Bay canal is to be 20 feet deep and run by the way of the French and Ottawa rivers. The Dominion government has already spent \$500,000 on surveys. The waterway will be 425 miles long, with 30 or 40 locks. Many existing waterways will be utilized. The canal proper, by which is meant such conditions as will require low speed, will have an aggregate length of only 32 miles, and in practice the disadvantages inherent in an artificial canal, according to a government report, will hardly exist.

"It is estimated that grain can be carried from Chicago to Montreal by this route at 3 cents a bushel, as compared with 4½ cents at American ports. While the canal has not actually been authorized, it is believed from what has been done already that it will be constructed at a comparatively early date. This Georgian Bay canal will shorten the distance from Lake Huron to Montreal by 300 miles and avoid the navigation of Lakes Ontario and Erie and of the St. Lawrence river above Montreal, and would naturally, during part of the year while it would be open, attract a large volume of traffic. About 60,000,000 tons of products are carried eastward over the lakes each year, of which Canadian vessels now carry less than 3 per cent. Canada's appropriations for canal and navigation improvements now exceed \$100,000,000."

Benton of Missouri, Silas Wright, Frank P. Blair, and other distinguished statesmen.

That memorial likewise failed to secure Federal aid for canal enlargement.

On March 24, 1863, a joint meeting of the committees of the Board of Trade of Buffalo, and of the Produce Exchange of New York City, was held in the city of New York to formulate resolutions to be presented to the Legislature for the furtherance of the Erie canal improvement. It was addressed by General Hiram Walbridge of New York and the Hon. George S. Hazard of Buffalo. In General Walbridge's speech he deplored the failure of Congress to make the necessary appropriation to increase the inland water communication between the East and the West and called attention to the fact that the Legislature of Illinois had appointed a committee to proceed to Canada and if need be, to London, to lay before the British Government the great inducements which now exist for opening an interior water communication by way of Lakes Michigan, Huron and the Georgian Bay direct to Montreal and from the River St. Lawrence to the Atlantic ocean.

A committee representing the Board of Trade of Buffalo thereupon appealed to the Produce Exchange to unite with it in appealing to the Legislature and induce that body "when making the necessary appropriation for the construction of the additional locks on the western division of the Erie Canal, between Rochester and Montezuma, to have them of sufficient capacity to pass barges capable of transporting from 20,000 to 30,000 bushels of grain, and thereby supersede those" then in use. The Hon. George S. Hazard of Buffalo, then President of the Buffalo Board of Trade and afterwards President of the Buffalo Historical Society, was chairman of the committee which recommended this enlargement, and it is singularly prophetic in that it recommended an enlargement substantially as capacious as the barge canal now in process of construction.

The joint committee proceeded to Albany and presented their views to the joint committee of the Legislature. They strongly urged the increase in size of the locks, substantially

as proposed by the committee of the Board of Trade in Buffalo. They also recommended that the locks west of Montezuma be enlarged at an early day.

On April 3, 1863, the Hon. Samuel B. Ruggles, commissioner appointed by the Governor of the State of New York under the concurrent resolution of the Legislature of April 22, 1862, in respect to the enlargement of the canals for national purposes, made his report, which was transmitted to the Legislature by Governor Horatio Seymour, on April 8, 1863. In this report, Commissioner Ruggles states that he "personally attended before the President and several of the heads of Departments, and also before the various committees of the Houses of Congress, who have the subject in charge." He "also attended and assisted at several meetings of the members of Congress, informally assembled to consider the merits of the proposed measures, and has been engaged in constant and daily consultation and conference on the subject with individual members." He stated that the bill introduced in Congress to carry out the national measures proposed by the Legislature of New York was defeated, and he proposed the calling of a national convention in the city of Chicago in the same year for the purpose, among other things, of presenting to the next Congress the "high considerations of national importance, military, commercial and political, involved in the adequate enlargement of the canals between the valley of the Mississippi and the Atlantic." He embodied in his report documents, resolutions and many data relating to the subject matter, which he was commissioned to present to the President and Congress of the United States, but which failed to receive Federal support.

In 1865 a convention was held in Detroit, at which were delegates from various lake ports, to consider reciprocal trade relations between the States and Canada. On that occasion the Hon. Israel T. Hatch of Buffalo presented views of the commercial interests of Buffalo in a strikingly able speech. He reviewed the various commerce treaties between the United States and Canada and called attention to the advantages to accrue from reciprocal trade relations with

the Dominion. In it were suggestions and interesting facts of the commercial development of the State. It evinces a keen commercial instinct, ever on the alert to reach out for trade and to extend our commerce to the north as well as to the west. Mr. Hatch performed other distinguished services for Buffalo at that period of its history. On January 30, 1867, he made a report in relation to the "revenue, trade and commerce of the United States with the British provinces since the abrogation of the reciprocity treaty, and any changes in Canadian tariff regulations," and the "comparative importance of American and Canadian commercial channels of transportation of property from the west to the seaboard." That report is long and deals intelligently with the important questions submitted to him for his consideration. It shows a wide acquaintance with the important commercial and transportation questions involved and the extent of the commerce over the Canadian and New York canals, and the advantages afforded by them as avenues of commerce.

Mr. J. D. Hayes of Buffalo strongly combated¹ the proposed Niagara Ship canal, which had been the mooted question for upwards of half a century, and demonstrated its futility as a commercial or military necessity. One cannot read these papers without reaching the conclusion, often repeated since they were written, that the construction of a canal between Lake Erie and Lake Ontario would not contribute to the commercial development of the State of New York, but would redound to the benefit of Canadian commerce.

Senator D. S. Bennett of Erie County, in 1867, made an argument before the Senate Committee on canals, in favor of the enlargement of the locks on the Erie and Oswego canals, the cost of which was estimated at \$8,215,263. In this connection it is interesting to know that in 1866 the number of arrivals and departures of vessels at Buffalo aggregated 14,078, with an aggregate registered tonnage of 7,317,428 tons. It appeared to the advocates of the enlarged locks that the tremendous strides in lake and canal commerce

1. In a series of papers contributed to the *Buffalo Commercial Advertiser*.

at the port of Buffalo rendered it essential that the locks of the canal be enlarged to admit of the passage of vessels 200 feet long, 23½ feet wide, drawing 6½ feet of water. Such vessels would carry from 550 to 800 tons.

In the Constitutional Convention of 1867 many canal matters received consideration and consumed much time. Canal construction, operation, enlargement and improvement involved a State financial policy adequate to meet the burdens of such public improvements. In the Convention of 1867 two committees were appointed to deal with canal affairs. The reports of these two committees were considered in the committee of the whole and involved such questions as the liquidation of the canal debt of the State and the creation of sinking funds to accomplish that result, and the insertion of the provision requiring all canal contracts to be let to the lowest responsible bidders. The amount of canal indebtedness was limited and the convention went on record against the creation of a debt of \$12,000,000 for enlarging canal locks and rested their conclusion on the fact that a seven foot prism was adequate to do all the business that the Erie canal had ever been required to perform and there was no immediate necessity for enlargement of the canal locks, the actual expense of which might far exceed the estimated cost.

In 1869 the Hon. D. S. Bennett of Buffalo, in the House of Representatives, presented a bill seeking Federal aid for the improvement of the Erie canal, which he denominated a "national highway between the Great Lakes and the Hudson river." He discussed the matter fully and called particular attention to the enterprise of the statesmen and business interests of the Dominion of Canada who were then crowding forward a system of waterways and canal construction that were the despair of some of our American states and could only be rivaled by the Federal Government.

In 1869 Senator Asher P. Nichols of Buffalo, in the discussion of a bill in relation to canal contracts and repairs, said:

"The canals of New York, that marvelous system of internal improvements, needs no eulogy here. New York, without undue as-

sumption, claims the position of the Empire State. Among all the bright sisterhood she wears the crown of commercial supremacy. If there be one thing more than another to which we are indebted for our fame and commercial leadership, it is our magnificent artificial highways of commerce."

In 1870 a State convention of the canal interests was called by the Commercial Union of the State of New York, to consider measures for reforming the management and improving the trade of the New York State canals. The Hon. Nathaniel Sands was chosen president of the convention, and among the vice-presidents were Israel T. Hatch, ex-President Millard Fillmore, Alexander Brush, Asher P. Nichols, S. S. Guthrie, Niles Case, Hiram Niles, George S. Hazard and George W. Tifft, all of Buffalo. From other counties were many of the most prominent men of the State who theretofore and at that time were identified with its commercial development. The Hon. Horatio Seymour, the Hon. Israel T. Hatch of Buffalo, the Hon. Henry L. Fish of Rochester, and others, made addresses. The proceedings of that convention are interesting to all canal advocates and the membership comprised large delegations of prominent men from several counties of the State. Their presence afforded some indication of the importance given to canal transportation by its leading citizens at that period of its history.

It was generally recognized that the improvement in railroad equipment, the enlargement of railway cars and locomotives, and the acquisition of adequate railway terminal facilities, which characterized railway management in the latter quarter of the 19th century, made railways formidable rivals of the waterways of this State, which remained unimproved except as proposed under the act of 1835, for nearly half a century. When it was found that the abolition of tolls did not save to the canals their commerce and that improved railway facilities were drawing them increasing tonnage annually, Chambers of Commerce and canal advocates throughout the State took up the question of canal improvement upon a more extensive scale than ever undertaken, and sought the advice of engineers to determine what manner of improvement was best calculated

to hold for the canals and the State its commerce. The matter of enlarging the locks of the canal had already been to some extent considered, first as a national project, and when it was determined that Federal appropriation could not be obtained, then as a matter of State undertaking.

In his official report of 1878 State Engineer Horatio Seymour, Jr., proposed a plan of improvement to increase the depth of water to eight feet "by lowering the bottom in some places and raising the banks in other places" and thereby enable vessels of 300 tons capacity to navigate the canal. He also suggested the enlargement of the locks. This came to be known as the Seymour plan, which received much attention for several years.

The improvement planned by ex-State Engineer Seymour involved the deepening of the Erie and Oswego canals to 9 feet, the Champlain canal to 7 feet and the lengthening of the remainder of the locks upon the Erie and Oswego canals to make them uniform with those theretofore enlarged.

An organization, known as the Union for the Improvement of the Canals of the State of New York, was formed in 1885 and the Hon. Frank S. Gardner, Secretary of the Board of Trade and Transportation of New York, was made its secretary. That organization favored the improvements recommended by Horatio Seymour, Jr., and called upon friends of the canal throughout the State to unite upon that plan of improvement. The Union was opposed to the cession of the Erie canal to the General Government, and in its argument against such a proposition said: "The moment that a State ceases to take care of her own canals and looks to Congress for the assumption of that duty, the work of decay sets in. There are canals at the west, in other parts of the country, that would be of great public utility today, if the communities that ought to support them had not been waiting and hoping against hope that Congress would relieve them of that responsibility."¹

In the Senate on May 25, 1881, Senator Benjamin H. Williams of Buffalo, in advocacy of his bill for the enlarge-

1. See "Canal Improvement Document No. 3," N. Y. Board of Trade and Transportation.

ment and improvement of the Erie canal, said: "The bill under consideration is a measure intended to save the commerce of the State by cheapening the rates of transportation on the Erie canal, and it seeks to bring about that result by a reduction of the rates of carrying through an enlargement and improvement of that waterway."

He proposed to enlarge the locks by making them 236 feet in length and 26 feet in width, without any increase in depth, and to arrange them in two tiers. The bill also provides for the deepening of the channel one foot and raising the banks two feet, thereby giving three feet additional depth of water. He estimated that "If the canal were enlarged as proposed it would admit of the passage of boats of one thousand tons burden, carrying thirty thousand bushels of grain," and that boats would undoubtedly be propelled by steam and that the carrying price of grain from Buffalo to New York would be reduced at least one-half. This is singularly prophetic of the conclusions reached by the Roosevelt Commission, which recommended the improvement now in process of construction admitting of the passage of boats carrying one thousand tons of freight.

In 1884 the State Engineer, Elnathan Sweet, before the American Society of Civil Engineers, presented a plan for a ship canal from Lake Erie to the Hudson. The prism was to be 100 feet wide on the bottom and 18 feet deep and the locks were to be 60 feet wide and 450 feet long. The route proposed was along the existing canal from Buffalo to the Clyde river, crossing the Seneca river on an embankment and aqueduct 50 feet high and thence along present alignment to Syracuse and thence easterly to the Mohawk, which was to be canalized. The estimated cost was \$150,000,000 and the probable tonnage capacity 20,000,000 to 25,000,000 tons annually. Prominent engineers took part in the discussion that followed. E. H. Walker opposed the proposed ship-canal "as being both too expensive and too slow." Thos. C. Keeper favored the transfer of lake cargoes at Buffalo to barges.¹

1. See Proceedings Am. Soc. Civil Engineers, v. 14.

In one of the documents issued by the Canal Union, dated May 25, 1885, referring to the condition of the New York canals, they say: "Nothing of importance has been done in the way of improving our canals for twenty years, during which time the capacity of the Canadian canals has been trebled and numerous improvements have been made in every branch of railroad transportation."

The Legislature passed a bill authorizing the construction of an experimental lock at Geddes, which was a complete success, "doubling the lockage capacity of the canals and thereby greatly increasing their efficiency."¹

A canal improvement conference was called in the city of Utica on the 19th of August, 1885, over which ex-Governor Horatio Seymour was elected chairman, and there were present Hon. Edward Wemple, Hon. O. B. Potter, A. B. Miller, Esq., and other prominent canal advocates. On assuming the chair Governor Seymour called attention to the imperative duty of the State to save its commerce by improving the waterways and thereby preventing the further diversion of canal traffic to railways. In the course of his speech, he said: "Forty-three years ago I was chairman of the Canal Committee. I was in favor of the canal system. It was then believed that the days of usefulness of the canals had passed away. These men said that when the forests were cut off, the canals would not be as valuable as they had been previously. I was opposed to that view."²

On February 2, 1886, the Hon. Orlando B. Potter, one of the foremost of canal advocates of the State, upon invitation addressed the Joint Committee of the Senate and Assembly upon the subject of canal improvement without Federal aid. He called especial attention to the effects of canal transportation as a regulator of freight rates, and said:

"As such regulators, the canals when properly improved and made efficient, as they will be by lengthening the locks and deepening the channel as is now proposed, will repay to the State and its

1. "Canal Improvement Doc. No. 4," N. Y. Bd. Trade and Transportation.

2. "Canal Improvement Doc. No. 11," N. Y. Bd. Trade and Transportation.

population every year, in the cheaper cost of the necessities of life and of the commodities used and consumed in the business, growth, and sustenance of the great towns and cities of the State to be served by them, nearly, if not quite, the entire cost of the expenditure required for such improvement."

On February 28, 1886, a bill was reported to the House of Representatives, appropriating \$5,000,000 for the enlargement of the Erie and other canals of this State, which was opposed by New York commercial bodies and it was defeated.

In the session of the Legislature of 1886, a bill was introduced providing for an increase of the lockage capacity of the Erie and Oswego canals. A hearing was given on that bill by the Hon. David B. Hill, which was attended by representatives of the Union for the Improvement of the Canals, and representatives of other commercial bodies from various parts of the State. Although this was designed to bring about the improvement then considered necessary, it was not approved and did not become a law.

On August 25, 1886, a canal convention was held in Syracuse, consisting of delegates from various commercial bodies of the State, which was addressed by various gentlemen, among them Daniel Barnes, chairman of the delegates of the Maritime Association of the State Board of New York. In the course of his address, he said:

"Why is it that ships which discharge in Boston and other ports along the coast, come to New York so often for outward business? It is because of the great influx to New York of exportable merchandise. The State of New York did a wise thing in making her canals free. Another wise thing for her to do is to remove all owners' port charges from these vessels that contribute so directly to the prosperity of her industrious sons. We should invite and encourage this commerce which brings to us wealth from beyond the seas."

The Syracuse convention, December 28, 1886, adopted resolutions recommending the lengthening of one tier of locks, so that they would be 220 feet long and not less than 18 feet wide, and be equipped with such machinery and appliances as in the judgment of the Superintendent of Public

Works should render such locks most efficient. Accordingly, a bill was formulated and introduced in the Legislature, in 1887, entitled "An act to facilitate State commerce by increasing the lockage capacity of the Erie canal and improving the Oswego and Champlain canals," and making an appropriation of \$550,000 to carry forward those improvements.

At the same session a bill was introduced, entitled "An act to protect the commerce on the canals of the State," known as Senate Bill No. 525 and Assembly Bill No. 570, the first section of which read as follows:

"It shall not be lawful for any railroad corporation doing business in this State to make any written or other contract, or to allow any rebate or advantage for the shippers of freight over or on its road conditioned directly or indirectly that the owner, consignee, or any other person shall not ship or receive, as the case may be, any goods, merchandise or produce over or upon any canal owned by the State."

Section 2 provided a fine of a thousand dollars for its violation.

That bill was introduced in response to resolutions proposed at the Syracuse convention on August 25, 1886, and referred to the executive committee of the Union for the Improvement of the Canals, consisting of Messrs. Orlando B. Potter, William H. Webb, A. B. Miller, John F. Henry, Frank S. Gardner, DeWitt C. Littlejohn, J. A. Hinds, George Clinton, Frank S. Witherbee, and Arthur W. Hickman, all prominent canal advocates, and by that committee adopted on April 2, 1887. One of these resolutions read as follows:

"That the attempt by railway corporations, deriving their charters and existence from the people of this State to intimidate and prevent shippers and citizens from the use of the canals, by unequal discriminations against them in freights upon the railways, is a most unjustifiable attack by such corporations upon the property rights and interests of the people of the State, by depriving them of the low freight which the canals are intended to secure, and increasing the cost to consumers of all commodities transported by the canals."

The endorsement of the foregoing bill by this executive committee is the earliest, or one of the earliest declarations against the practice of freight railway discriminations which was made in this country.

The bill passed the Senate by a large majority vote, but failed to pass the Assembly for want of time, but was endorsed and its passage recommended at the next canal convention.

Among the complaints made to the Legislature was that of A. D. and R. D. Foot of Lowville against the Utica & Black River R. R. Co., in effect that 40 cents per hundred was charged for freight from Utica to Lowville, whereas the charges to other merchants were but 25 cents per hundred. Similar complaints were made by other shippers.¹

The practice of discrimination in railway freights by railway companies was so general that it led to an Act of Congress, entitled "An Act to regulate commerce," approved on February 4, 1887, and applied to all common carriers engaged in the transportation of passengers or property, hauling by railroad, or partly by railroad and partly by water, when both are used, under a common control, for a continuous carriage or shipment from one State or Territory to another, or to an adjacent foreign country.

Congress asserted its power to regulate commerce over the waters of a State when they constitute a highway for foreign and inter-state commerce.

The Inter-State Commerce Commission, of which the Hon. Thomas M. Cooley was chairman, in its first report says:

"A study of the act to regulate commerce has satisfied the members of the commission that it was intended in its passage to preserve for the people the benefits of competition as between the several transportation lines of the country. . . New York with its noble harbor, its central location, the Hudson river and the Erie canal for interior waterways, cannot be deprived of the benefits which spring from these great natural and acquired advantages, without all together eliminating competition as a force in transportation charges by the exercise of sovereign legislative power, estab-

1. See Senate Docs., 1885, vol. 2, No. 8, part 1, pp. 107-109.

lishing arbitrary rates over the whole country. . . . In their competitive struggles with each other, towns cannot ignore the effect which the existence of natural waterways must have upon railroad tariffs; the railroad companies cannot ignore it, nor can the commission ignore it, if competition is still to exist and be allowed its force according to natural laws. Neither can the great free Erie canal be ignored; it influences the rates to New York more than any other one cause, and indirectly, through its influence upon the rates to New York, it influences those to all other seaboard cities, and indeed to all that section of the country."¹

On July 28, 1887, the third annual convention of the Union for the Improvement of the Canals of the State of New York was held in Rochester. It was addressed by Prof. O. F. Williams and Hon. De Witt C. Littlejohn, and presided over by the Hon. George Clinton of Buffalo, who was elected its permanent chairman. Mr. Gardner was again secretary. Mr. Clinton had served as chairman of the Canal Committee of the Assembly in 1884 and had been a close student of canal affairs in this State for many years. Mr. Clinton is the grandson of the illustrious DeWitt Clinton, and the natural successor in interest to all that pertains to the betterment of the State's commercial facilities. It was but natural and proper that he should be chosen as president of the Rochester convention. In assuming the chair he said: "In order that the business of this convention may proceed with expedition, I refrain from stating the reasons which make the improvement of the canals imperative. They have often been stated and are familiar to yourselves and to the people at large; they are founded on the immutable laws of political economy; they have never been refuted and no respectable attempt to answer them has ever been made."

On that occasion New York City was represented by its Board of Trade and Transportation, the Produce Exchange, the Maritime Association, the Boat Owners' Association, the New York Mercantile Exchange, and the Metal Exchange. Buffalo was represented by the Merchants' Exchange, the Business-men's Association and the Mayor's

1. 1st an. rept. Inter-State Commerce Commission for 1887, pp. 40, 41.

Committee. Albany, Utica, Syracuse, Oswego, Rochester, Lockport and other towns were represented by their Boards of Trade, Chambers of Commerce, or other commercial organizations; and many of the smaller cities and villages of the State were also represented. Among the prominent delegates were Orlando B. Potter, Frank S. Gardner, Franklin Edson, Daniel Barnes, Esq., William E. Cleary, John N. Drake, Hon. E. S. Prosser, Hon. Arthur W. Hickman, William Thurstone—many years secretary of the Board of Trade of Buffalo—and other well-known canal advocates of this State. This convention was addressed by several of its most prominent members and was so representative a body that it did much to formulate public sentiment and concentrate it upon the matter of canal improvement as it had not been before. It emphasized the importance of the enlargement of the locks and prism in some such manner as had been suggested by Horatio Seymour, Jr., or otherwise, to the end that the improvement would make the waterway more capacious and its lockage less dilatory than theretofore.

On December 30, 1887, a Canal Convention was held in Rochester, which adopted resolutions, among other things endorsing a bill entitled "An act to facilitate State commerce by increasing the lockage capacity of the Erie, and Oswego canals, and to improve the Oswego, Black River, Champlain, Cayuga and Seneca canals and the Seneca Lake level of the Chemung canal, by enlarging the locks as recommended in the legislation proposed by the preceding convention." The bill of 1887 having failed of passage, at the next session of the Legislature a bill was introduced carrying an appropriation of a million dollars to carry forward canal improvement in the manner proposed in the so-called Seymour plan. An executive committee was authorized and empowered to formulate bills to carry out the recommendations of the convention. The committee did not adjourn until it had adopted several other resolutions which had been submitted by a committee of which Mr. Littlejohn was chairman. The convention was one of the most important that had been held in this State up to that time.

In a letter sent out to representatives of the commercial bodies of the State in September, 1888, by the Hon. George Clinton, president of the Union for the Improvement of the Canals, and the Hon. Orlando B. Potter, chairman of the Executive Committee, it is stated that: "In our State Legislature the proposition has been strenuously opposed by sections of the State lying away from the line of the canal, on the plea that they are to be taxed without benefit to themselves and for the good of the western producer and manufacturer. Up to the present time, we have been successful and in three years appropriations for this object [improvements of locks and deepening of channel] have been made amounting in the aggregate to \$1,340,000."

The success attending the enlargement of lock 50 at the eastern end of the Jordan level was such that locks 47, 48, 49, 51 and 52 were recommended by the engineer in his report in 1885 for similar enlargement, and therefore in 1887 appropriations for increasing the size of locks 31, 32, 33, 34, 35, 44, 45 and 46; and also 53, 54, 55, 56, 60, 61, 62 and 72, were recommended for enlargement. All these were completed before the opening of navigation in the year 1888 except lock 46, which was not completed owing to litigation with the Delaware, Lackawanna & Western Railroad Company.

An appropriation of \$200,000 was made in 1888 for lengthening the remaining locks of the Erie canal, and locks 27, 28, 29, 30, 63, 64 were designated for enlargement, the appropriation being insufficient, however, to enlarge lock 26. The increased size of the locks necessitated an additional water supply and it was proposed to build storage reservoirs in the Adirondacks, at an estimated expense of \$60,000 for that purpose.

The tonnage on the canals was still large, and in the year 1889 aggregated 5,370,363 tons.

In 1889 an additional sum of \$10,144.61 was appropriated to complete the lock improvements on the Erie canal. The Superintendent of Public Works was authorized to expend certain money in his hands for deepening and cleaning

out the canal which had been authorized the previous year, to a uniform depth of seven feet.

At the close of navigation in 1889, 27 locks had been lengthened and seven were in process of enlargement, thereby enabling two canal boats without uncoupling to navigate 314 miles of the canal. In 1889 nearly one-third of the entire Erie canal had been "bottomed out" under the direction of the Superintendent of Public Works. The enlarged locks required an increase in the amount of water necessary for lockages, which occasioned some anxiety with reference to the long, high levels of the canals. The fleets of two or three boats necessitated additional power, and it was found advantageous to employ triple teams in drawing them and that necessitated a widening of the tow-path to 18 feet at a further expense to the State.

In the literature relating to canal affairs appears a letter under date of February 29, 1888, from ex-Senator Roscoe Conkling, in which he says:

"I believe in the maintenance, enlargement and freedom of this great artery of commerce for reasons too many to be stated in a brief letter. . . . Not only as a feeder, but as a regulator and safeguard the canal is so needful that the day will be ill-starred when the people or legislature shall turn deaf ears or blind eyes to whatever honest demands it makes on the State or its revenues."

This well illustrates the intelligent sentiment of the foremost citizens of the State in regard to its artificial waterways, and was potential enough to impress the Legislature with the necessity of making appropriations from year to year for the enlargement of the locks and the "bottoming out" of the prism.

Thirty-eight locks on the Erie were lengthened prior to 1892, covering a distance of 323 miles. In 1891 an Assembly committee of seven was appointed to investigate "the management of canal affairs for the preceding eleven years."

That committee made its report on February 24, 1892, in which it found that "not a dollar had been unnecessarily appropriated or otherwise than carefully expended."¹

1. See Assembly Doc. No. 57, 1892.

In a speech by the Hon. Chauncey M. Depew, president of the New York Central & Hudson River Railroad Company, reported in the *Elmira Advertiser* on October 24, 1891, he is quoted as saying:

"The canals compete with the roads with which I am connected at every point. That is true. The canals compel very low rates of transportation, lower than on any other railroad in the world. This is true. But the canals in their connection with the Great Lakes, these inland seas of our country, compel the commerce which floats upon those seas to find the port of Buffalo in the hope of getting through the canal to the seaboard. The surplus which the canal cannot carry comes to the railroads, and the prosperity which the canal and the lakes give to the State of New York in the promotion of their business comes in turn to the railway."

In 1891 a bill formulated by the Union for the Improvement of the Canals was introduced, calling for an appropriation of \$500,000 for lengthening the canal locks and deepening the canals in furtherance of a policy which had prevailed for several years of making annual appropriations for continuing the work of lock enlargement and canal improvement.

When the bill was under consideration in the Senate, Senator John Laughlin of Buffalo made a carefully prepared speech on the subject, in the course of which he said:

"Mr. Chairman, I wish to say that in view of the fact that the State holds in sacred trust all these surplus revenues of the Erie canal, and it is for the Erie canal that I plead upon this floor, that the State, which holds these millions upon millions of dollars in excess of all that the canal has cost it to this very hour at which I speak, shall hereafter pursue a more liberal policy toward that canal, shall expand it, enlarge it, improve it and do everything that can add to its capacity to receive and transport through our borders the majority, the great bulk of the commerce of the country. It stands ready for us if we will only open our arms and receive it. No transportation known to civilization is as cheap as that by water, and if we will keep this canal open and free and unobstructed, and of sufficient capacity to receive and transport the commerce which will come to us by water from the West, we will continue the supremacy of this State as it has acquired and held it since the canals were built."

The bill passed the Senate, but failed to pass the Assembly.

Senator John Laughlin during his career in the Senate from 1888 to 1891, and thereafter, was one of the ablest canal advocates in the State. He was preceded in the Senate by the Hon. Daniel H. McMillan, an astute lawyer, who, on various occasions, was equally strong and forceful in his advocacy of canal measures.

In the Senate and Assembly *Journals* from 1870 to 1900, the critical period of our canal history, may be found the record of canal advocates from various parts of the State, and notably the records of such senators from Erie county as Loran L. Lewis, John Ganson, Albert P. Laning, Sherman S. Rogers, E. Carleton Sprague, James H. Loomis, Dr. Ray V. Pierce, Benjamin H. Williams, Robert C. Titus, Daniel H. McMillan, John Laughlin, Mathias Endres, Chas. Lamy, Henry H. Persons, Simon Seibert, George A. Davis, William F. Mackey and Samuel J. Ramsperger and others; and such Assemblymen from Erie county as Edward Gallagher, Charles F. Tabor, Charles A. Orr, David F. Day, Harvey J. Hurd, Henry F. Allen, James Ash, James A. Roberts, Arthur W. Hickman, George Clinton, William M. Hawkins, William F. Sheehan, Henry H. Guenther, Edward K. Emery, Le Roy Andrus, Myron H. Clark, Cornelius Coughlin, J. L. Whittet, Philip Gerst, John K. Patton and others.

These, or nearly all of these, were sentinels to watch and defend from hostile attack the canal policy of the State as expressed in memorials, petitions and legislative enactments. And in their advocacy of various canal measures that were presented from time to time involving many and divers questions in engineering, finance and economics, they voiced the intelligent sentiment of the people of the State in relation to its commercial policy and rendered public service of a high order.

New York and several other counties during this critical period were represented by senators and assemblymen fully alive to the commercial interests of the State and able and aggressive in the advocacy of all canal measures. United

States senators and members of Congress from the State of New York, although unable to secure Federal appropriations, were nevertheless in accord with the predominant sentiment of the great commercial cities of the State, whose interests largely depended upon the cheap transportation afforded by the artificial and natural waterways of the State.

Judging from my own five years' experience in the Assembly and eight years' experience in the Senate, with a score or more of important canal statutory and constitutional measures, I can appreciate something of the demands made upon the members of the Senate and Assembly during the critical period of canal history and the efforts they were required to put forth to carry successfully through the Legislature canal measures against the well-nigh solid opposition of the rural counties of the State and railroads. Their work was not for the immediate benefit of individuals, or of a temporal character, but for the public good and far-reaching in its scope, and, therefore, it was such as not to provoke popular applause. Its effect, however, on future generations will be enduring.

XVIII. SOME CONVENTIONS—THE CANALS AND THE CONSTITUTION.

To recur again to the narrative, it will be remembered that an important canal convention was called in the fall of 1892 by the Union for the Improvement of the Canals of the State, of which the Hon. George Clinton of Buffalo was then president, Orlando B. Potter of New York chairman of the executive committee, and Robert H. Cook of Whitehall, treasurer; Frank S. Gardner of New York and Arthur W. Hickman of Buffalo, secretaries.

In their formal call issued on that occasion is set forth the problems then confronting the people of the State and especially its commercial interests, requiring important consideration. It was stated that railway freight rates had been materially reduced by reason of the competitive influence of canal rates, but that as soon as the canals were closed rail rates advanced and in some instances doubled. Special

attention was called to the efforts of railroad managers to divert the traffic from the canals with a view of discrediting them as a means of transportation. An appeal was made for a State Canal Convention, to be held in the State prior to the approaching election (which was held in Buffalo in October), with a view of determining the canal policy to be pursued thereafter and to formulate plans to secure necessary appropriations to carry on canal improvement, as the Canal Improvement bill which passed the Senate and Assembly in 1892 had been vetoed by Governor Flower. That bill involved the Seymour plan of improvement and contemplated the lengthening of the locks and the deepening of the Erie and Oswego canals to nine feet, so that they would admit of navigation by boats carrying fifty tons additional freight.

Horatio Seymour estimated the cost of this improvement at \$1,100,000.

The Hon. Martin Schenck, State Engineer and Surveyor, in his report for 1892, advocated the making of a survey to determine the expense of increasing the depth of the water in the canal prism to nine feet, except at the aqueducts and locks. He also advocated the repairing of the principal aqueducts to insure their safety for navigation. He opposed the making of an appropriation by Congress of one hundred thousand dollars for a survey for a ship canal from the Hudson river to the Great Lakes on the ground that neither an ocean nor a lake steamer could pass through a canal three hundred miles long economically. He said further that "the practical canal of the future, connecting Lake Erie and the Hudson river ought to be one capable of bearing barges two hundred and fifty feet in length by twenty-five feet breadth of beam, of a draft not to exceed ten feet and of such a height that the great majority of bridges that should span this canal might be fixed structures instead of draw-bridges." He estimated that such barges would carry fifty thousand bushels of wheat. This is said to be the first suggestion of the barge canal.¹

1. Hist. N. Y. Canals, 345.

In a report made to the House of Commons on June 23, 1888, Mr. F. R. Condon states: "The Suez canal, which ought to take the traffic of the world, is positively choked with ten ships a day." Mr. W. W. Evans, states: "Another point is the difficulty in traversing curves with these long steamers; it is impossible to keep them from running into the banks, even when on straight lines, as many of them are very cranky. On coming through the Suez canal in 1879 in one of the P. & O. steamers, 450 feet long, we had run about a mile on a straight line when the steamer got a sheer on her and away she went with her bows into the bank; the stern swung around and went into the other bank and there we stuck for more than an hour."

The Suez canal is about 90 miles long and for a portion of its length it extends through the Bitter lakes and other natural bodies of water; so that *pro tanto* reduces the artificial waterway which is at sea level, and is a far less difficult waterway for ocean-going vessels to navigate than would be a ship canal, extending from the Great Lakes to the Hudson river, with a lockage variation of several hundred feet.

The Legislature appropriated the sum of \$75,000 in 1893 to repair portions of the aqueducts. The same year there were appropriated various sums of money for improving the canals, its feeders, basins, dams, rebuilding walls and constructing swing or lift bridges in various parts of the State.

During the last decade petitions and memorials were presented by the various commercial bodies of the State, to the Legislature, urging upon the Senate and Assembly the importance of making such appropriations as would carry forward the improvements hereinbefore mentioned. These documents furnish interesting literature on the subject and did much to keep alive interest in the subject of transportation by water at a time when railway and other influences were antagonizing that method of transportation, openly and secretly whenever opportunity presented itself. In a communication addressed to the Hon. Evan Thomas, President of the New York Produce Exchange, under date of December 4, 1893, from the Committee on Canals, consist-

ing of G. W. Balch, R. H. Laimbeer, John P. Truesdell, Franklin Quinby and E. M. Clarkson, appears the following significant conclusion :

"The canal exists, notwithstanding the assaults of half a generation of open and covert enemies, simply because water transportation represents the unit of economy. This fact is being recognized by competitors, and there is hope in the future for more reasonable treatment of this great interest, not only from them, but from their proprietors the people, through legislative authority."

The New York Produce Exchange on this and many subsequent occasions through its duly constituted committees, took an advanced stand on all canal measures and was one of the principal organizations most active in its advocacy of the thousand ton barge canal measure of 1903.

In addition to the various canal conventions heretofore mentioned, an important State Canal convention was held February 25 and 26, 1868, for the purpose of securing reform and improvement in the canal management, which formulated a memorial on the importance of inland navigation, which was supplemented by resolutions and other expressions of opinion of various boards of trade and popular meetings held at Buffalo, Rochester, Syracuse, Utica, Albany and New York.

In the memorial is found this important declaration :

"As the canal system is, and should ever continue to be, the property of the people of the State of New York—as its practical value advances with the increasing demand for facilities of transportation between the Atlantic seaboard and the interior regions of our continent—there is no subject connected with our material prosperity that should more fully command the consideration of citizens generally, and of the Legislature in particular. Everything which can be consistently done to promote its efficiency, reacts powerfully on the prosperity of the community. The great advantages inseparable from the system of inland navigation that connects our State so closely with the vast lakes and their surrounding states and territories, commend the canal system to increased attention, even in these days of stupendous railway achievement—for no possible improvements in transportation can ever destroy the usefulness of our canals, if they are only managed with integrity and discretion; and

the more thoroughly the subject is considered, the more will the people generally become impressed with the vast and growing importance of the heritage thus secured to them through the enlightened policy of such statesmen as Clinton and his compeers."

Hon. James P. Wallace of New York was elected president of this convention; Henry L. Fish, Abraham Hoffman, A. W. Hunter and others were vice-presidents; Henry O'Rielly, William Thurstone and others were secretaries.

The New York City delegation comprised many of its then prominent men, most of whom are now passed away. The New York Produce Exchange, the boards of trade of Albany, Troy, Oswego, Rochester and Buffalo, and the smaller cities of the State, were all represented. In this memorial were presented the various phases of canal affairs as they then existed in this State. One of the difficulties then concerning the people was the method of canal maintenance and canal repairs, which was then done under contract. In the preamble and resolutions presented by Mr. A. M. Clapp of Buffalo, chairman of the committee on resolutions, may be found the following:

"Resolved, That we regard the present contract system of keeping the canals of the State in repair as entirely subversive of the interests of the State and of those engaged in canal commerce, and subservient alone to the advantage and profits of the contractors; as detrimental to the welfare of commerce, and ruinous alike to the canals and their interests, and to those who have invested their enterprise and capital in the transportation of property through these channels of communication; and we, therefore, call upon the Legislature of the State, to repeal the laws under which the State canals are kept in repair by contract, and to enact others which shall provide for their repair by superintendents, or some other responsible agents, so that they may be kept in a navigable condition during the season of navigation, and rendered available to the demands and interests of commerce."

Other evils were referred to in these resolutions and other resolutions were offered by such well-known canal advocates as M. M. Caleb of New York, Henry L. Fish of Rochester, Hiram Niles of Buffalo and others. An elaborate banquet was given by the Albany Board of Trade and the Lumber-

dealers' Association at the Delavan House on the evening of February 26th, to the 200 delegates to the canal convention, comprising distinguished citizens from all parts of the State. Addresses were made by Hon. James P. Wallace of New York, Senator Asher P. Nichols of Buffalo, Hon. De Witt C. Littlejohn of Oswego, Hon. Martin I. Townsend of Troy, Hon. David Mitchell of Syracuse, Hon. Homer A. Nelson, Secretary of State, Hon. A. M. Clapp of Buffalo, Lt.-Gov. Stewart L. Woodford of New York, Henry Smith, Esq., Hon. Chauncey M. Depew, and Hon. Henry O'Rielly of New York.

The membership of that convention comprised many distinguished citizens from the cities and State at large and gave time and careful consideration to the pending canal questions of great interest to the State.

In the memorial prepared by this convention to the Legislature, was a protest against the policy of maintaining a partnership between the State and private parties, concerning water needed for canal purposes, and a recommendation for a revision of the rates of toll upon property intended for transit on the canals, so as to retain the trade and prevent diversion. There was also a recommendation to make it imperative on the part of the State to maintain the lawful depth of water in the various canals of the State. This convention was one of the most important ever held. It served a most salutary purpose at a time when the management of canal affairs was most extravagant, if not reckless, and there was imperative need of reform.

At the meeting of the Constitutional Convention of 1894 canal affairs were in a rather unpromising condition. Several amendments were proposed to the Constitution in relation to the canal article by members of that convention. Some of these amendments proposed a lease or sale of the canals, and others contemplated their transfer to the United States Government. Still others were designed to impose limitations upon the expenditure of moneys for their maintenance and repairs and were designed further to restrict the powers of the Legislature with reference to canal appropriations.

One amendment excepted the Main and Hamburg canal, in the city of Buffalo, from the Constitutional inhibition against the sale of the canals of the State. This amendment was finally favorably reported and adopted, and thereafter the Main and Hamburg canal in the city of Buffalo was deeded by the State to the city of Buffalo and closed up. For several years prior thereto it had ceased to be operated as a canal and had been a menace to the health of the people in the vicinity. It had been repeatedly condemned by the local and State boards of health as a public nuisance.

In the convention of 1894 little consideration was given to the financial policy of the State in formulating the canal article. The existing fiscal provisions of the Constitution had been largely formulated by the convention of 1846 and in some respects had been amended in 1874 and in 1882 and 1883, and did not then appear to require radical amendment except as proposed in the new section 10 of article 7 of the Constitution.

The evolution of the fiscal policy of the State in relation to public improvements was briefly as follows: During the legislative session of 1838, Assemblyman Chas. B. Ruggles of the Committee of Ways and Means made a comprehensive report to the Legislature proposing an outline of a new fiscal policy with reference to carrying forward internal improvements by borrowing "such moneys as are needed for prosecuting most vigilantly its [the State's] public works and in lieu of appropriating the revenue only of the present canals for the purpose of making such expenditures as the interests of our citizens require and that the State should retain that revenue as a sinking fund to pay the interest of all moneys it may borrow from time to time to prosecute and perfect a liberal system of internal improvement." This plan was adopted by the Legislature and the Commissioners of the Canal Fund were directed to borrow four millions of dollars, which were appropriated towards the enlargement of the Erie canal; the interest until otherwise directed, to be paid out of the canal revenue.¹

1. See Chap. 269, Laws of 1838.

This policy prevailed until the enactment of Chapter 114 of the Laws of 1842, "to provide for paying the public debt and preserving the credit of the State," and a tax of one mill on a dollar of the assessable property of the State was thereby imposed. The act also provided for temporary loans to pay arrearages due contractors and for preserving the unfinished work; and expenditures on the canals were to cease, except as they might be required to complete unfinished jobs and secure the navigation of the canals, and was denominated "the Stop Act."¹ Prior to 1838 the financial policy was to apply the surplus canal revenues to the prosecution of canal enlargement as fast as the funds thus applied were available.

The provisions of Chapter 269 of the Laws of 1838 inaugurated a new policy whereby the revenues were to be applied to the payment of interest and the extinguishment of principal of moneys, which were authorized to be borrowed and for that purpose sinking funds were created.

This is a summary of the principal statutory provisions relating to canals as they existed at the time of the Constitutional Convention of 1846. In that convention, the Hon. Michael Hoffman of Herkimer county, chairman of the committee on finance, submitted two reports.² In the first of these reports was proposed a new article, consisting of seven sections in relation to "the existing debts and liabilities of the State and to provide for the payment thereof," and in the second report was proposed another new article, consisting of seven sections in relation to "the power to create future State debts and liabilities, and in restraint thereof."

This was the earliest effort that had been made to embody in the Constitution itself a financial scheme, and it gave rise to a long and spirited debate which was participated in by Genl. James Tallmadge, Charles P. Kirkland, Horatio J. Stow, Samuel J. Tilden, Charles O'Connor, Alvah Worden, Lemuel Stetson, Richard P. Marvin, John Leslie Russell and others. This discussion was able and as animated as that which had engaged the House of Commons over the

1. See Chap. 78, Laws of 1844.

2. See 2 Docs. of Convention of 1846, Nos. 64 and 65.

government measure introduced by Sir Robert Peel for the repeal of the Corn Laws, and passed a few days prior to the opening of the convention. Both discussions involved the consideration of important economic questions and were conducted on the plane of broad statesmanship.

Some of the sections, as originally proposed by the committee on finance, after mature consideration were amended, with the consent of Mr. Hoffman, upon whom the burden largely rested of carrying the proposed amendments through the convention, and they together formed the new Article VII of the Constitution of 1846.

The Court of Appeals, in the case of *Newell against the People*,¹ had considered *in extenso* the several sections of article 7 of the Constitution as formulated by the convention of 1846, which declared the policy and procedure for the creation and liquidation of canal debts and the purposes to which canal revenues were to be applied. The Constitutional convention of 1867 also considered the matter at great length and made some recommendations, all of which were disapproved by the people at the general election at which they were submitted for ratification.

The Constitutional Commission of 1872 and 1873 proposed amendments to certain sections of article 7 of the Constitution and some of these were approved at the general election in 1874. Other sections of the canal article were amended in 1882 and 1883.

The paramount canal question in the convention of 1894 was not so much one of finance as it was one of policy which the State would thereafter pursue toward its artificial waterways. Theretofore the administration had been unsettled, the appropriations uncertain, and no well-defined policy had been determined upon. Canal improvement had theretofore gone on at "a sluggish rate," it was said. The time had now come when it must be decided whether or not canal improvement should go forward and the Constitution be amended to permit that to be done, or whether the canal system should be suffered to fall into decay and eventually

1. Reported in 7 N. Y. pp. 9-140.

abandoned. Notwithstanding the occasional annual appropriations and enlargement of some locks, there was no question in the minds of those familiar with existing conditions but that the system was retrograding rather than being advanced, and it would only require a short time to complete the abandonment. Accordingly canal advocates in the convention of 1894 addressed themselves to the importance of the canal system to the State and the necessity of making provision for radical improvement by so amending the Constitution as to permit the Legislature to determine the character of the improvement and to provide under the existing constitutional sections for raising the necessary funds for that purpose.

Various phases of the canal question were considered in the Constitutional Convention of 1894. Long and cogent arguments were made by such able men as Hon. George Clinton and others, before the Canal Committee of that convention, of which Judge J. Rider Cady of Hudson was chairman. The debates in the convention were spirited and reflected the sentiment of the people throughout the State on this important matter which had engrossed the public attention for nearly a century. In the Revised Record of the Constitutional Convention of 1894 may be found the debates which occurred on the various proposed amendments during the sessions of that body.

All the amendments originally proposed to the Canal Article of the Constitution, except that relating to the sale of the Main and Hamburg canal of the city of Buffalo, were either unreported or voted down during the evening session held on September 10, 1894. On the following morning, at a conference of the Republican members of the convention, held in the Assembly Parlor, I secured a caucus rule to the effect that all adverse action theretofore had in the convention, be reconsidered and the whole matter of canal improvement be again committed to the committee on canals. Accordingly, Judge Cady, chairman of the canal committee, on the morning of September 11th, rose in the convention and stated:

"Mr. President—In the hope that after the experience of yesterday some resolution of the much debated canal improvement question may be arrived at that will be satisfactory to a majority of this convention, I move that the vote of this convention taken last evening, by which the report of the committee of the whole on the canal amendments was disagreed, be reconsidered."

The President put the question on the motion of Mr. Cady and it was determined in the affirmative. Thereupon all the proposed amendments were referred back to the canal committee.¹

It was apparent that canal advocates in various parts of the State who had entertained diverse opinions with reference to what ought to be done in furtherance of canal improvement must harmonize their views and agree upon a common plan of action. There were those who theretofore insisted on inserting in the Constitution itself an appropriation of from eighteen to twenty million dollars for canal improvement. Others had contended that the Constitution ought to be so amended as to enable the Legislature to make whatever appropriations it might find necessary to carry forward canal improvement as should thereafter be determined. This latter view was finally embodied in a proposed amendment, agreed upon by Judge Cady, Judge Chester B. McLaughlin, who was a delegate from the Twenty-first Senatorial district, and myself, after a conference with some of the leading canal advocates of the State, including Capt. William E. Cleary, Daniel A. Cooney and others and it is now Section 10 of Article 7 of the Revised Constitution of 1894, and reads as follows:

"The canals may be improved in such manner as the Legislature shall provide by law. A debt may be authorized for that purpose in the mode prescribed by Section 4 of this article, or the cost of such improvement may be defrayed by the appropriation of funds from the State treasury or by equitable annual tax."

This amendment gave rise to further debate, but was finally adopted by the affirmative vote of 89 members, one

1. Vol. iv, Revised Record of the Constitutional Convention of 1894, p. 355.

more than was requisite to secure its passage in the convention. Most of the delegates from the eastern and from some of the central and western counties of the State, spoke and voted in favor of measures proposed to enable canal improvement to be carried on, while most of the delegates from other counties were arrayed against them.

The canal article was finally submitted separately from the other proposed constitutional amendments to the people for their approval at the general election in 1894. The friends of the measure and commercial bodies throughout the State urged its approval and it was ratified by a majority of 115,353 affirmative votes, which was a larger majority than was given to any other amendment submitted at that time. This vote was reassuring to canal advocates throughout the State and they lost no time in preparing a measure which was introduced by Mr. Edward M. Clarkson in the Assembly on January 9, 1895, providing for the issuing of bonds not exceeding nine million dollars in amount for the improvement of the Erie, Champlain and Oswego canals, and providing for the submission of that measure to a vote of the people at the general election in the year 1895. This bill passed the Assembly on January 19th and the Senate on February 21st, and with the approval of the Governor became a law on March 9, 1895. The bonds were to bear not to exceed 4 per cent. interest and to run for not more than 17 years.

The improvement contemplated consisted in the deepening of the Erie to not less than nine feet, except over aqueducts, mitre sills, and other permanent structures where there was to be eight feet of water, and except in the case of the Champlain canal where the depth was to be seven feet. Such locks as had not theretofore been lengthened were to be lengthened and made of the same dimensions as those already enlarged. Vertical stone walls were to be constructed and the aqueducts and bridges rebuilt where necessary. This measure was approved at the general election held in the fall of 1895.

The plan of improvement was that commonly known as the Seymour plan.

The report of the Canal Commission appointed by the Governor in 1898, of which the Hon. George Clinton was chairman, states:

"At the time the Act of 1895 was passed a considerable improvement of a portion of the canal had been made. Many locks on the Erie canal and some on the Oswego canal had been lengthened. Upon the Champlain canal deepening to the seven-foot standard had been accomplished in some places and the mitre sills of the locks adapted to the requirements of the improvement. . . . The work upon the Oswego canal was of a peculiar nature, consisting almost entirely of race dams and improving and canalizing the Seneca and Oswego rivers. . . . Before the convening of the Constitutional Convention in 1894, it was the general impression founded on no definite estimate that to deepen the canals and lengthen the locks would cost from seven to nine million dollars. That convention asked for an estimate. The State Engineer and Surveyor furnished one; the figures given by him were \$11,573,000. This estimate was very defective. It had to be made in a few days without opportunity to make surveys and without sufficient data in the records to give any accuracy to the estimate. It was merely the best guess which the State Engineer could give, based upon such facts as he had at hand. . . . At the commencement of the work under the Act of 1895, the State Engineer's Department made an estimate based upon their preliminary surveys, which resulted in figures that in 1896 showed plainly that the cost would be at least \$13,500,000, without any provision for engineering expenses, advertising, or inspection. These estimates the department at once proceeded to cut down with the idea that they might bring the expense within nine million dollars. This should not have been done. . . . As the work progressed it became plain that all prior estimates were too small and another one was prepared. This amounted to about \$16,000,000, . . . and was made public through a letter from the State Engineer to Mr. Hefford of Buffalo. . . . Thus it finally appeared that seven million dollars more would be needed to complete the improvement; and now upon further investigation, based on figures furnished by the same official, it is apparent that a much larger sum will be necessary."¹

The report proceeds to give further information in regard to the improvement undertaken in 1896 and to show that the

1. Report of Canal Commissioners appointed by the Governor; Chap. 15, Laws of 1898, as amended by Chap. 327, Laws of 1898.

appropriation was wholly inadequate to carry out the so-called Seymour plan. Prior to the appointment of such commission, all work under the nine-million dollar referendum measure was stopped by legislative enactment; contracts were closed and adjustments made with the contractors. The improvements were never completed and were the occasion of charges of fraud and misappropriation of funds, which led to the appointment of the investigating commission, with the results hereinbefore stated.

In the communication addressed to Robert R. Hefford, chairman of the Executive Canal Committee, Buffalo, N. Y., under date of December 22, 1897, the State Engineer and Surveyor and Superintendent of Public Works summarize the salient points of the statement made by them in answer to the charges against them as follows:

1. That no surveys for such an improvement of the canals as is now under way had ever been made up to 1896.
 2. That the estimated cost of this improvement, as submitted to the Constitutional Convention in 1894, was prepared in twelve days, and was, therefore, well known and stated to be practically mere guess work.
 3. That the careful surveys and estimates when made in 1896 from a thorough examination of the 454 miles of canals to be improved showed that the probable cost of such improvement was about \$16,000,000.
 4. That an unsuccessful effort was then made to cut out work to bring the cost within the appropriated \$9,000,000.
 5. That the impossibility of using a large portion of the excavated material for use on the banks of the canals as originally contemplated very greatly increased the cost.
 6. That during the progress of the work of excavation the unpreventable caving in of dilapidated and toppling walls and structures necessitated new constructions and increased quantities at large additional expense.
 7. That contracts have been already let for the completion of about two-thirds of the proposed improvement, which portion it is expected will have been completed at the opening of navigation in 1898. The estimated cost at contract prices of this two-thirds of the work aggregates \$7,121,812, though this covers two-thirds of the length and not the volume of the whole work.
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8. The contracts already let cover what are believed to be the most difficult portions of the proposed improvement.

9. That proximately seven millions of dollars additional will be required to complete the improvement.

10. That with that sum available we believe the entire improvement can probably be completed at the opening of navigation in 1899.

11. That the progress made to date has been as rapid as was consistent with other conditions and that the whole work might have been under contract now, had sufficient funds been available.

12. The contractors are required by law to bid upon a definite character and quantity of work and that they are finally paid for the actual amount of work performed at the contract prices. Under this plan the State always pays for the work actually done for it—no more, no less.

What steps shall be taken to complete the work must of course be determined by the Legislature, but that its prompt completion on the lines on which it is begun is a necessary, wise and expedient undertaking, can not be gainsaid.

From this and the Clinton Report it will be seen that it was impossible for the State Engineer and Surveyor from data in his office to certify to the Constitutional Convention of 1894, the cost of the improvement authorized by the Referendum Measure of 1895.

XIX. ENLARGEMENT MEASURES—THE SHIP CANAL PROPOSITION.

During the legislative session of 1898, before the appointment of the Clinton Commission and after the letter from the State Engineer and Surveyor to Robert R. Hefford had been made public, in which it was stated that it required seven million dollars more to complete the improvement under the Seymour plan, Senator Jacob A. Cantor in the Senate, and I, in the Assembly, introduced what is known as the Seven Million Dollar Referendum Measure, designed to provide for the issuing of bonds to that amount to complete the improvement undertaken under the nine million dollar referendum measure. The bill was introduced concurrently in the Senate and Assembly and shortly thereafter a counter proposition was introduced by Senator Frank D.

Pavey, of New York, in the form of a resolution, designed to turn over the canals to the Federal Government.

The resolution proposed to amend Section 8 of Article 7 of the Constitution by providing that the prohibition against the sale, lease or other disposal of the canals of the State should not apply "to the sale, lease or other disposition of said canals or either of them to the United States Government, upon such terms as might be mutually agreed upon, and upon the express condition that the United States shall improve, maintain and operate the same as a free public waterway, and, in case of failure by the United States so to do, that the said canals or either of them, together with all improvements made thereon shall revert to and again become the property of the State of New York."¹

This was not a new proposition. As early as 1808 a joint legislative committee had been appointed to consider the propriety of making a survey for a canal between the Hudson river and Lake Erie, "to the end that Congress may be enabled to appropriate such sums of money as may be necessary to the accomplishment of that great national object."² That committee reported by resolution, which was adopted, directing the Surveyor-General to make accurate surveys and charts and to transmit a copy of the same to the President of the United States.

On April 8, 1811, an Act was proposed, authorizing the appointment of commissioners who were empowered to make application to the Congress of the United States and to the legislatures of the various states, to coöperate in providing for the improvement of the internal navigation of the State.³ The commissioners made application to the President and to the Congress of the United States, and to the different states and territories.⁴ A bill was prepared for a general system of internal improvements in various states and granting 4,000,000 acres of lands in Michigan and Indiana territories to the State of New York, as soon as the

1. See Senate Journal, 1898, vol. 2., p. 1241.

2. 1 N. Y. Canal Laws, 7, 8.

3. *Ib.* 70.

4. *Ib.* 88, 89.

Erie canal should be open. The New York sub-committee presented the matter to Congress which at first appeared to view it with favor, but it was thereafter disapproved and the committee made its report on March 14, 1812, back to the Legislature of New York as follows:

"These men console themselves with the hope that the envied State of New York will continue a supplicant for the favor and a dependent on the generosity of the Union, instead of making a manly and dignified appeal to her own power. It remains to be proved, whether they judge justly who judge so meanly of our councils."¹

On April 17, 1816, another act was passed "to provide for the improvement of the internal navigation of the State." Commissioners were appointed thereunder and authorized to explore the route, estimate the expense and make application for aid to the Government of the United States and to the various states and territories, and also to individuals.²

Thereafter, on February 15, 1817, these commissioners made their report in which they say that they applied "to the United States and to the States of Vermont, Kentucky and Ohio as having a common interest with New York in the contemplated canal, and where they feel persuaded that a favorable disposition exists." "But if no extraneous aid should be offered, it will be at all times in the power of this State to levy high transient duties on the articles transported to and from those states and the territories of the United States, and thereby secure, eventually, a greater fund than can possibly arise from those quarters."³ That committee made its report on March 17, 1817, and among other things states that "the Legislature of Ohio pledges an effective coöperation in the construction of the canal," and that "additional aid may be expected from other states in the West," and that they might confidently look for help from the Government of the United States.⁴

In the preamble of the Canal Act, passed on April 18, 1816, may be found this recital, that this act is proposed "in

1. *Ib.* 94.

2. *Ib.* 196.

3. *Ib.* 269.

4. *Ib.* 280.

full confidence that the Congress of the United States and the states equally interested with this State in the commencement, prosecution and completion of those proposed works, will contribute their full proportion of the expense."¹

In 1835 A. B. Johnson of Utica presented to Charles Humphrey, Speaker of the Assembly, a formal communication in favor of a ship canal from Lake Ontario, through Oneida lake and the Mohawk river to the Hudson river, of the following tenor:

"The inhabitants of this city (Utica) held a large public meeting on the 12th inst., and agreeably to a duty then enjoined on me, I have the honor to transmit you the proceedings of that meeting, and also a very elaborate report and survey and estimate, with maps made by Edwin F. Johnson, Esq., Civil Engineer, of a proposed ship canal from Lake Ontario to the Hudson. The present survey extends only to Utica. The survey was made at an expense of \$1,000, and by the exertions of a committee which was constituted at a State convention of delegates held at Utica last fall. Of the report of the engineer I can speak with confidence that it is highly deserving of examination, and solicit this for it from the Legislature, with such further action as they shall deem proper."²

This is one of the earliest proposals for a ship canal from the Great Lakes to the sea. In the proceedings had in the city of Utica, over which Mayor Joseph Kirkland presided, was presented a report setting forth the reasons for such a waterway. After describing the success attending steamboat navigation of the Hudson river, the report proceeds as follows: "Looking then at the immense inland lakes and at the fertile territory of which they are the center, and at the restless industry and enterprise of our citizens, we may safely predict that the lakes are to become the scenes of mightier inland commerce than the world ever before witnessed." There are many other interesting statements in this historic report, such as the following:

"Your memorialists would not undervalue the great benefit which the Erie canal has conferred and is conferring upon the State, nor

1. *Ib.* 358.

2. See Assembly Docs., Feb. 13, 1835.

would they advocate any measure calculated to bring it into disuse, or which would look even prospectively to its discontinuance. It possesses the important advantages of security in time of war; of forming a part of a chain of communication with the Susquehanna valley; and will, whether the work now recommended is executed or not, from an important medium of communication with the West."

From this may be seen something of the enterprise of the people of the interior of the State within ten years after the completion of the Erie canal, in proposing the construction of a ship canal from Lake Ontario to the Hudson river. It must be borne in mind that their conception of a ship canal was far different from our conception of such a canal, which would be adequate to accommodate vessels 600 to 700 feet in length, drawing 20 to 30 feet of water, with a beam width from 45 to 65 feet, and with a carrying capacity of from 7,000 to 15,000 tons of freight.

I have already spoken of the efforts made by the State of New York during the Civil War to enlarge the Champlain and Erie canals to a capacity sufficient to accommodate the passage of gunboats and other naval vessels to the Great Lakes for their defense against attack from Canada.¹ In 1882 Representative Jonathan Scoville of the 32nd Congressional District, presented a bill in Congress for the purchase and management of the Erie canal by the National Government. A committee was appointed to consider the question of the cession of the canal properties of the State to the National Government. In 1884 Congressman Edward Wemple, from the committee on railways and canals, submitted a report of that committee on a bill to provide for the permanent improvement of the Erie canal and to aid in maintaining the same free to the commerce of the United States, which carried a provision for the payment to the State of New York of a million dollars a year for ten years, to be expended in enlarging the Erie canal. That bill, however, like the preceding one, failed to receive congressional approval.

1. The resolutions referring to these matters may be found in Senate Docs. for 1863, No. 110, pp. 11, 12, and appendix; and in the report of Saml. B. Ruggles, who had been appointed by Gov. Morgan to present the matter to the President and Congress.

In a discussion at the convention of the American Society of Civil Engineers, June 25, 1885, Elmer L. Corthell, afterwards one of the Advisory Board of Canal Engineers, maintained that the period of canal construction and usefulness was passing and that railways were to be the future and principal means of transportation. In this discussion he took issue with the position taken by Elnathan Sweet, who recommended a radical enlargement of the Erie canal. Mr. Corthell cites several instances of the abandonment of the canals in this and other countries and of the construction of railways as a means of general transportation. This discussion is valuable from a railway point of view, but had little deterrent effect upon the onward movement in canal construction in this and other states.

Mr. Sweet was much more in accord with the progressive spirit of the age and among the closing paragraphs of his paper are the following significant statements:

"If our national prosperity is to continue, we must reach foreign markets with our manufactures, and thus, by increasing the manufacturing class, create new home demands for our surplus food.

"To reach these markets we must cheapen the goods by lessening the cost of living to the operatives, and also the cost of bringing together the raw materials requisite to manufacturing processes, and of sending the manufactured products to market.

"With our widespread territory, cheap transportation is the chief agency in effecting these economies, and the Erie canal, joining the granaries, the mines and the forests of the West, with the manufactories of the East, should be endowed with the necessary capacity to effectually realize the ideal of the political economist as to transportation."

In January, 1886, Representative John B. Weber of Buffalo introduced a bill in Congress for the permanent improvement of the Erie and Oswego canals, and to procure their freedom to the commerce of the United States. That bill provided for the payment of five millions of dollars to the State of New York on condition that the canals be maintained free to the commerce of the United States. The bill was reported favorably on February 23, 1886, but failed of passage, although a resolution, introduced by Senator

Daniel H. McMillan of Buffalo, in the State Senate calling upon the senators and members of Congress from the State of New York to support the Weber bill, was favorably reported by the Senate and Assembly Canal Committees on February 2, 1886.¹

In the Constitutional Convention of 1894, Hon. John T. McDonough of Albany offered an amendment to the Constitution, authorizing the Legislature to sell or dispose of the canals of the State to the United States Government, and a similar resolution was introduced by Thomas G. Alvord of Syracuse.²

In his annual message to the Legislature of 1895, Governor Levi P. Morton said:

"The improvement and administration of the State canals should command most careful and enlightened attention at the present session. Since the inception of that great enterprise, the Erie canal, more than three-quarters of a century ago, the people of this State have continually recognized the impetus it has given to the general progress and commercial prosperity of the Commonwealth. It has been a prime factor in the establishment and maintenance of the commercial eminence of the port of New York."

After discussing the cost of railway and canal transportation, he continues:

"It is my duty to emphasize the lesson which these figures teach, and to urge upon you the importance of prompt and statesman-like action in providing for the improvement of the canals and their administration upon a sound basis, unmixed with political or other subordinate purposes and policies."

On January 21, 1895, Senator Frank W. Higgins offered a resolution requesting the senators and members of Congress of the State of New York to apply to Congress for an annual appropriation to the State of New York for a sum equal to three fourths of the amount expended by the State in the maintenance of its canal system.³

In 1872 a select committee of the Senate of the United States was appointed to make recommendation to effect

1. See N. Y. Senate Journal for 1886, p. 159.

2. See Revised Record, Constitutional Convention, 1894, pp. 67, 349.

3. N. Y. Senate Docs. for 1895, No. 17.

water communication between the Great Lakes and the Hudson river. That committee made its report in 1874, and suggested "the enlargement and improvement, with the concurrence of the State of New York, of one or more of the three water-routes from the Lakes to New York City, namely: The Erie canal from Buffalo to Albany; the Oneida Lake canal from Oswego to Albany; or the Champlain canal from Lake Champlain to deep water on the Hudson river, including such connection as may be effected between Lake Champlain and the Saint Lawrence river with the coöperation of the British Provinces, at an estimated cost of \$12,000,000."¹

Applications other than the foregoing were made by the State of New York to the Federal Government at various times for Federal aid in the construction of its canal system from the Great Lakes to the seaboard, but all without avail. Canal advocates familiar with this history were strongly opposed to the Pavey resolution which had been reported favorably by the Judiciary Committee of the Senate and advanced to the order of third reading. Meetings were held in the city of New York and elsewhere in the State, at which public sentiment found expression in speech and resolution, as it did through the press, in strong opposition to the Pavey resolution. At one of these midday meetings held under the auspices of the Merchants' Association of New York, at No. 346 Broadway, March 26, 1898, representing 160 different lines of trade and industry and several hundred business firms in the city and State of New York, William F. King, President of the Merchants' Association, Senator Jacob A. Cantor, of New York, and myself, then a member of Assembly, spoke at length against transferring the control of the canal system of the State to the Federal Government and in favor of a passage of the seven million dollar appropriation bill, known as the Cantor-Hill bill, which preserved to the State its canal properties esti-

1. See U. S. Senate reports on transportation routes to the seaboard, 43d Cong. 1st sess., vol. 3. An outline of other surveys made by the United States between 1895 and 1900 may be found in the report of Edward A. Bond, N. Y. State Engineer and Surveyor in 1901, pp. 670, 976, 978.

mated to exceed a hundred million dollars in value, and which was then considered a sufficient additional appropriation to complete the improvement already undertaken.

Resolutions poured into the Legislature from various parts of the State of the following tenor: "The Pavey resolution either gives away the canals or deprives them of all support for several years; the Cantor-Hill resolution submits to the people whether they will keep and improve the canals at a cost of seven million dollars." The protests were so strong that when the Pavey resolution came on for final action in the Senate on March 29th, it received but 16 affirmative votes and there were 32 votes against it, eight senators who voted on the preceding Friday to advance the resolution having changed to the negative on its final passage.

All prior appeals to the Federal Government for appropriations in aid of the construction, maintenance or operation of a canal system in this State having met with failure, the Pavey resolution was interpreted as another effort to delay if not wholly defeat further canal improvement in this State.

XX. NEW YORK'S DECLINE OF COMMERCE, AND ITS REMEDY.

In his annual message to the Legislature of 1898, Governor Frank S. Black said:

"No man can contemplate the past history of New York without feelings of pride. Surrounded at the beginning, like her sister commonwealths, with conditions which seemed almost without hope, she has in a few years attained dimensions of an empire. This transformation has been wrought through the unexampled gifts of nature and the industry and skill of the citizens, protected by a wise and just government. If these reflections inspire pride only, without determination, their main value is lost. An inspiration that produces no results is no better than an agreeable recollection. There must be some practical test to the effect of former achievements upon our present energy. This test will be found in the manner in which the people of this State deal with the subject of their commerce in its present situation. That situation is not as it ought to be; easily the best in the country, it is not so much the best as it has been and can

be made. The commerce of New York is not increasing as rapidly as that of other ports. . . . It is said that the commerce tributary to New York has been checked and discouraged by a too narrow policy prevailing there with reference to terminal facilities. . . . In order that this subject may be treated with that consideration and care which its magnitude demands, I recommend that a commission be created to examine into the commerce of New York, the cause of its decline and the means of its revival, and report conclusions."

Governor Black on this and other occasions, manifested a deep interest in the commercial development of the State and city of New York, and in his annual messages took occasion to urge the prosecution of canal improvement under the nine million dollar act, and was disappointed that the appropriation was inadequate to complete the work, which had been authorized.

In accordance with his recommendation, the Legislature of 1898, enacted Chapter 644 of the Laws of that year, authorizing the appointment of a commission to investigate into the causes of the decline of the commerce of New York. The Governor appointed as members of that commission ex-Mayor Charles A. Shieren of Brooklyn, Andrew H. Green, C. C. Shayne, Hugh Kelley and Alexander R. Smith. The life of the commission was extended another year by Chapter 494 of the Laws of 1899. The commission was well constituted and made an exhaustive investigation into the various questions relating to the commerce of the port and State of New York, and its report, filling two large volumes, was submitted by Governor Theodore Roosevelt to the Legislature on January 25, 1900. Ex-Mayor Shieren had long been identified with the commercial interests of New York, and Alexander R. Smith had written extensively and was a recognized authority on all commercial questions. Their report summarizes a few of the principal canal measures and transportation over the canals of the State for the purpose of showing the effect of the interior water-borne tonnage upon the commerce of New York. In the report of this commission may be found the conclusion reached by the Inter-state Commerce Commission in the case of the

New York Produce Exchange *vs.* the Grand Trunk Railway, involving railroad discrimination against New York, wherein they say: "The great supremacy of New York in the past has been measurably due to its canals. If it would hold that supremacy in the future, it must give attention to that same waterway. . . . If the canal were to be restored today to the same position in its carrying trade that it has occupied in the 20 years past, the commerce of the port of New York could not suffer."¹ The commerce commission attributed the decline of New York's commerce to various causes and made several recommendations, among which were the abolition of differential agreements, the adequate improvement of the Erie canal, and the creation of proper terminal facilities in New York and Buffalo.

It was during the legislative session of 1898 that bills were proposed authorizing the appointment of the Canal Investigating Commission, which consisted of Hon. George Clinton, Franklin Edson, Smith M. Weed, Edwin R. James, Frank Brainard, A. Foster Higgins and William McEchron. The discussion that arose over the passage of those bills in the Senate and Assembly was not only spirited, but assumed political aspects that tended to divide canal advocates along lines which had theretofore and thereafter largely been obliterated whenever canal measures were under consideration.

There were those who asserted that the powers of the commission were so restricted that a thorough investigation could not be made into the alleged frauds committed under the nine million dollar referendum measure, and that the bills authorizing the appointment of the commission were purposely so framed as to make it impossible for the commissioners to go forward in a thorough manner.

To the various objections raised to the bill answer was made by Speaker S. Frederick Nixon and others, in effect that ample powers were conferred upon the commissioners to conduct a thorough and exhaustive investigation into all work done under the referendum measure of 1895, and that

1. Students of transportation problems in this State will find the report of the N. Y. Commerce Commission a valuable medium of information from authentic sources.

there were parliamentary precedents for the form of the bill under consideration. In the course of the debate on this measure in the Assembly on January 26, 1898, the Speaker, the Hon. S. Frederick Nixon, said:

"I trust that I may be pardoned for reviewing to some extent the history of the canal legislation during the past three or four years. Some of the older members of this House will recall when in 1894, there was introduced in the lower branch of the Legislature a bill providing for the submission to the people of a proposition for the expenditure of twelve millions of dollars, upon the canals of this State, which was defeated. Shortly after the adjournment of the Legislature there convened in this House the Constitutional Convention of 1894. The canal proposition was presented at that time. In the discussion upon this proposition requests were made of the various public officials to give to the Constitutional Convention estimates as to the cost of this work. . . . The Superintendent of Public Works who at that time had the assistance of Mr. Martin Schenck, who was formerly State Engineer and Surveyor, and who assisted him in compiling the data, reported that no reliable information existed either in his department or that of the State Engineer and Surveyor, through which anything like a close approximation might be made. From such data as was available he estimated the cost of carrying out the Seymour plan, which contemplated the deepening of the prism one foot and raising the banks one foot, so as to secure two additional feet of water, at between nine and ten millions of dollars; and the additional cost of the substitution of vertical for sloping walls, at \$40,000 per mile, besides the cost of engineering, as there were 250 miles of such walls on each side to be reconstructed, the aggregate cost for that was estimated at ten millions of dollars. . . . The State Engineer reported that there was not sufficient data in his office from which to make an estimate that could be relied upon, and after going over the figures of his predecessor, he reported to the Superintendent of Public Works that it would involve an expenditure of between eleven and twelve millions of dollars. . . . This proposition was submitted to the people, and the constitutional amendment carried at the next election. The Legislature in 1895, pursuant to the Constitutional amendment, submitted to the voters of this State an act which provided for the appropriation of nine millions of dollars to carry on such canal improvement; and I desire to say in this connection that the question of the form of the improvement and the appropriations neces-

sary to carry it out were more under the advisement and charge of what is known as the Canal Executive Committee than that of any State department.

"The Legislature passed the act of 1895. It was submitted the following fall, and by a majority of between 200,000 and 300,000 was approved by the people of this State. Immediately thereupon the State Engineer proceeded to make estimates and to prepare plans and specifications, and contracts were let on the various lines of the canals; but not until early in 1896 did the Engineer have an opportunity to make further surveys. In the meantime the work went on from month to month before complete surveys were made. . . . The State Engineer continued his investigation upon the question of the cost of this improvement. It was reported by his assistants that possibly this work would cost fifteen or sixteen millions of dollars. . . . He met with the Canal Board and the Executive Canal Committee, and stated to them that in his judgment there could be eliminated from that work enough so that it would reduce it to the original appropriation of nine millions of dollars. As the work went on new and unforeseen conditions arose, and large expenditures were required for the reconstruction of what had been improperly done under former enlargements."

It devolved upon us to satisfy the House that the bill was in proper form and that it was supported by American as well as British parliamentary precedents. Some of these had been established, as was said by Baron Parke in *Beaumont v. Barrett*,¹ "by virtue of ancient usage and prescription, the *lex et consuetudo Parliamenti*, which forms a part of the common law of the land, and according to which the High Court of Parliament, before its division, and the Houses of Lords and Commons since are invested with many privileges." In defending the measure I took occasion to call attention to some of these British parliamentary precedents as well as the precedents of the United States Senate and other parliamentary bodies, including those of the legislature of this State, some of which are cited in *People v. Learned*, reported in the 5 Hun's Reports, at pages 626 and following, in disposing of the question of the powers of the Tilden Commission, authorized under Chap-

1. Moore Privy Counsel, 63.

ter 91 of the Laws of 1875, to investigate into canal affairs. We succeeded in satisfying a majority of the members of Assembly that the measure was adequate to accomplish the purposes designed by its framers, and was abundantly justified by such precedents. The bill was finally passed and approved, and the investigation conducted thereunder with the results already stated.

The agitation over the Pavey resolution, and the fact that an investigation was to be made into canal affairs, involving the question as to the amount of money necessary to complete the improvement according to the plan embodied in the referendum measure, led canal advocates to the conclusion that it would be safer and wiser not to press the seven million dollar referendum measure to a vote, but to defer action thereon until it could be definitely ascertained whether or not that sum would be sufficient to complete the improvement.

The Clinton Commission made its report to the Legislature February 28, 1899, from which it appeared that a much larger sum would be needed to complete the improvement under the nine million dollar act than had been theretofore stated, and the Legislature sought the advice of the Attorney-General with the view of adjusting damages under contracts partially completed. Bills were introduced and passed to accomplish that result. One of these bills was entitled "An Act authorizing the Canal Board to terminate contracts made by the State of New York for the improvement of the Erie canal, Champlain canal and Oswego canal, permitting the return and payment to the contractors of the money deposited and earned by them under their contracts with the State of New York."¹

The inadequacy of the nine million dollar appropriation to complete the improvement was the occasion of bitter criticism on the part of the press and anti-canal forces in the State, who had denounced in most unsparing terms all who had in any way been identified as advocates or as participants in the work of canal construction under that measure.

1. Senate Journal, 1899, vol. 2, p. 1751.

The claim was again made that the canals should be abandoned and canal properties turned over to railways. Such a proposition as that never had and never could receive approval; and although there was occasion for complaint, canal advocates were in no way responsible for existing conditions. They had been as zealous in the proper expenditure of money as they had been in the advocacy of the appropriation, and to no one was there traced any speculation or incriminating circumstances involving themselves or their friends in the alleged frauds under the nine million dollar referendum measure.

When these matters were laid before Governor Theodore Roosevelt, on March 8, 1899, he called to his assistance for the purpose of determining "the broad question of the proper policy which the State of New York should pursue in canal matters," General Francis V. Greene, ex-Mayor George E. Green of Binghamton, Hon. John N. Scatcherd of Buffalo, Major Thomas W. Symons, Hon. Frank S. Witherbee of Port Henry, who together with the State Engineer, Hon. Edward A. Bond, and the Superintendent of Public Works, Hon. John N. Patridge, constituted the so-called Roosevelt Commission.

General Greene and Major Symons were West Point graduates, army engineers of wide experience and especially fitted to serve on the commission. Major Symons had been identified with the Deep Waterway Survey through New York and had given much study to the subject of canal affairs in this State. The other gentlemen named on the commission were all identified with commercial affairs and took a broad view of transportation problems.

This commission entered upon the subject matter referred to them from the standpoint not only of experience, but with a knowledge acquired by a study of transportation problems in this and other countries. They devoted several months to public hearings, held in various parts of the State, and sent one of their number to Europe to study canals and canal construction in France, Germany and the Netherlands. They called to their assistance distinguished engineers and experts in canal matters, and made a thorough

investigation into all the problems involving canal construction in this State.

During this period there was much uncertainty as to what conclusions would be reached. The matters had been submitted in such form that it was possible for the commission to report adversely to all further canal improvement, although there had been no intimation from any member of the commission to that effect. The sentiment in the State in favor of canal improvement was very strong and on the call of the New York Board of Transportation a State Commerce Convention met at Utica on October 10, 1899, consisting of about 300 delegates from the various political divisions and commercial organizations of the State. A temporary organization was effected on the motion of the writer by the election of ex-Senator George B. Sloan of Oswego, a veteran canal advocate, as temporary chairman, and Messrs. Frank S. Gardner of New York and John Cunneen of Buffalo as secretaries. The committee on organization, of which the writer was made chairman, after ex-Senator Sloan had declined to serve as one of the permanent officers, recommended the Hon. John B. Kernan, a former State Railroad Commissioner and thoroughly familiar with transportation problems, of Utica, for president; Messrs. Frank S. Gardner of New York, John Cunneen of Buffalo and Dr. A. H. Bayard of Cornwall-on-the-Hudson for secretaries, and Russell H. Wicks, of Utica, for treasurer.

The convention remained in session for two days and considered such matters as are stated in the following addresses, viz., "Forest Preservation as related to Commerce," by Hon. David McClure of New York; "The Loss of Canal Commerce through Railroads' Competition and Discrimination and the Remedy," by Hon. John D. Kernan; "Grain Elevation Charges as Affecting Commerce," by Hon. George W. Smith of Herkimer; "The Canals of New York State, a Hindrance to its Commercial Prosperity," by John I. Platt of Poughkeepsie; "The State Canals, and what should be done with Them," by Hon. George B. Sloan; "What shall be done with the State Canals?" by Hon. Martin

Schenck, ex-State Engineer, of Troy, and on the same subject by Hon. James R. Arkell of Canajoharie and Hon. John P. Truesdell of New York; "The Commercial Future of the State in the Iron and Steel Traffic," by George H. Raymond of Buffalo; "The Canal Improvement and Terminal Facilities," by Hon. Henry B. Hebert of the New York Produce Exchange; "The Vital Importance of the Erie Canal to Buffalo," by Dr. John D. Bonnar of Buffalo. Several other addresses were made on related subjects. The committee on resolutions, of which Senator George B. Sloan was chairman, reported among other things that "The Erie, Oswego and Champlain canals ought to be materially improved to maintain the commercial supremacy of the State, thereby promoting the prosperity of its people." Among those who spoke in favor of the resolutions were Capt. William W. Clarke, Senator Sloan, G. H. Raymond, the writer—who was called to preside during the address of Hon. John D. Kernan—and others; and the resolutions were adopted with but one dissenting vote, that of Hon. John I. Platt, who on that and other occasions continued to oppose canal improvement. In his speech on that occasion he said:

"When the tolls became insufficient to pay for the maintenance of the canals, that was proof that their usefulness had departed, by the rule we have already named. It was expected that making them free,—that is to say, making the State instead of the traffic pay the cost of maintenance,—would largely increase their tonnage, but the increase during the following year was only 196,633 tons, and it has never since been as large as in 1882 except in a single year. In 1898 it was only 3,360,063 tons, which was less than in any other year since 1857, forty-one years ago. Meanwhile the tonnage of the railways between Buffalo and New York, once less than a fourth that of the canals, has grown to be over ten times as great. As compared with the two main roads, the New York Central and the Erie, the canals, which once carried 77 per cent. of the combined tonnage, now carry only $8\frac{3}{4}$ per cent. These figures tell a story of decline that though significant enough, has been so often told that it has lost the power to stir us. Let us consider others that point the same moral still more strongly.

The report of the Superintendent of Public Works for 1897, the last one printed, shows that the number of tons of freight of all kinds carried on the canals that year was 3,617,804. The amount paid in taxes for canal support that year, not including any of the money borrowed for the new enlargement, was \$2,571,169.47. This was just as much a part of the real cost of transportation as the wages of the boatmen, or the feed of the horses, or the fuel consumed in producing steam. If we divide this sum by the number of tons carried, the startling fact is revealed that the State paid at the rate of 71.07 cents for every ton of freight moved on the canals—71.07 cents per ton, or 3.55 cents per hundred pounds, 2.13 cents on a bushel of wheat, weighing 60 pounds, or 1.99 cents on a bushel of corn weighing 56 pounds. Last week the canal freight on wheat from Buffalo to New York was 3 cents per bushel, and on corn 2½ cents. Adding what the State paid in 1897 to this, we have an actual canal rate of 5.13 cents on wheat, and 4½ cents on corn. I am informed by a large shipper that that same week the railways were carrying wheat in large quantities at 5 cents, and corn at 4½ cents. In other words it costs more money to carry wheat or corn from Buffalo to New York by canal than it does by rail."

This was fully answered by several members of the convention. Notwithstanding this opposition the discussions, resolutions and general effect of the Commerce Convention were opportune and effective in formulating public sentiment on the subject of canal improvement throughout the State. The resolutions were a bugle-call to the commercial interests of all sections of the State, and the results were apparent in the action of the Legislature at its next session.

We members of the Buffalo delegations made a formal report to the Hon. Conrad Diehl, Mayor of Buffalo, which was transmitted by him to the Common Council and appears in the Proceedings for that year. Reports were made to various other cities and commercial bodies throughout the State.

This convention was followed by a conference of the commercial organizations of Greater New York with the Committee on Canals of the New York Produce Exchange on December 12, 1899, at which the following conclusion was reached:

"It is the earnest hope of the New York Produce Exchange that all commercial organizations of this State will fully recognize the necessity of a modern waterway of large dimensions, not less than fourteen feet in depth, with corresponding width, connecting Lake Erie with tidewater in the Hudson river, as an essential condition to the continued commercial supremacy of the State.

"If this conviction be impressed with an unanimous sentiment on the part of our commercial organizations upon the People, the necessary appropriations can be secured for this great work, by the means of which there can be no doubt that New York's preëminence in trade will be permanently established."

There were submitted to the Roosevelt Commission reports from engineers, commercial bodies, and individuals. These were all embodied in a report made to the Legislature on January 25, 1900, together with a large compilation of data relating to various phases of transportation in this and other States and together with the conclusions and recommendations of the Commission. That report fills a volume of 525 pages and has served as a text-book for canal advocates ever since its publication.

This Commission recommended the construction of a barge canal from Lake Erie to the Hudson, from Lake Ontario to the Erie canal, and from Champlain to the Hudson river, with a prism 12 feet in depth, except over mitre sills and other permanent structures where the water was to be 11 feet, with a width of 75 feet at the bottom, with sloping banks, except through the beds of lakes, and rivers where the width was to be 200 feet, and except through cities, towns and villages, where the width might be restricted. The route proposed for the Erie canal was along the Mohawk, through Oneida lake, and through Seneca and Clyde rivers, utilizing Wood creek which had formed a highway of commerce in the 17th century.

The Commission also recommended that the locks should be 28 feet wide and 310 feet long, so that two vessels each 150 feet in length, 25 feet in width and drawing 10 feet of water, might be locked through together. It was estimated that such a barge would carry approximately 1,000 tons and that the improvement of the Erie would cost approximately

\$62,000,000. The report contains much valuable data and a large edition was printed and extensively circulated throughout the State. This was submitted to the Legislature with a special message by Governor Theodore Roosevelt on January 25, 1900.

This report made a profound impression on the people of the State. Canal advocates were surprised and made enthusiastic at the magnitude of the waterways proposed, for they were larger than they had theretofore thought it possible to construct on account of the enormous expense involved, while the opponents of canal improvement in this State considered the recommendations of the Roosevelt commission so gigantic as to be wholly unfeasible to be put into practical operation. Public meetings were held at various parts of the State to consider the subject matter of the report. The various commercial bodies appointed delegations to confer with the Governor and legislative committees, for the purpose of determining the policy to be pursued as a result of the recommendations of the Commission.

The experience under the enlargement undertaken in 1835, as well as the inadequacy of the nine million dollar appropriation to complete the improvement then undertaken, were such as to convince all interested in canal improvement that it was not only wise but necessary to have a thorough survey made of the proposed routes to determine approximately the probable cost of the barge canal, the construction of which was recommended by the commission.

Canal advocates throughout the State united upon this policy and a bill was drafted for that purpose by the secretary of the Board of Trade and Transportation. Before its introduction, however, the bill was examined by Judge Charles Z. Lincoln of the Statutory Revision Commission, by State Engineer Edward A. Bond, by Superintendent of Public Works Col. John N. Patridge, and by Hon. John D. Kernan of Utica, President of the State Commerce Convention, and by all these approved. It was subsequently examined and approved by a committee appointed at a conference representing a number of the commercial bodies of New York.

XXI. LEGISLATIVE HISTORY OF THE BARGE CANAL.

During the legislative session of 1900, I was chairman of the Canal Committee of the Assembly and on March 6th introduced in the Assembly the bill, which was entitled "An act directing the State Engineer and Surveyor to cause surveys, plans, and estimates to be made for improving the Erie canal, the Champlain canal and the Oswego canal, and making an appropriation therefor." The bill carried an appropriation of \$200,000. On March 8th, Senator Henry Marshall of Brooklyn introduced the same bill in the Senate. Opposition immediately manifested itself in both Senate and Assembly, but the friends of the measures were on the alert and took effective steps to formulate public sentiment in favor of its passage. The press throughout the State was divided. On March 7th, Assemblyman Hyatt C. Hatch of Steuben offered a resolution in the Assembly proposing to amend the Constitution so as to enable the State to dispose of its canal properties to the Federal Government, substantially as proposed in the Pavey resolution of 1898. This tended to complicate matters still further.

About twenty-five of the leading commercial bodies of New York City on March 10, 1900, gave a dinner to Governor Roosevelt at the Waldorf-Astoria Hotel in recognition of his friendly attitude toward the canal interests of the State. It was presided over by the Hon. William E. Dodge, and was attended by Lieut.-Gov. Timothy L. Woodruff, Speaker S. Frederick Nixon, Hon. J. P. Allds, Gen. Francis V. Greene, Major Thomas W. Symons, Hon. John N. Scatcherd, Hon. Frank S. Witherbee, all of the Roosevelt commission, which had proposed the barge canal, and all the Canal Committee of the Assembly, and such other noted canal advocates as Senator Geo. A. Davis, John D. Kernan of Utica, Henry B. Hebert of the New York Produce Exchange, Gustav H. Schwab, Frank B. Brainard, Andrew H. Green, Frank S. Gardner, Lewis Nixon, Franklin Edson, A. B. Hepburn, Bird S. Coler, Edward A. Bond, John N. Patridge and Gherardi Davis, Franklin Quinby, W. R. Corwine, and scores of others interested in canal improve-

ment in this State. It was stated that 460 prominent business men of the city and State of New York were in attendance, representing nearly all the commercial organizations in New York City. It was the most notable canal dinner ever given up to that time in the State.

In the course of his remarks on that occasion, Gov. Theodore Roosevelt said:

"The scheme proposed is one of tremendous and far-reaching importance. . . . It is the only scheme which offers an adequate check on the railroads that now can or do show their mastery over our commerce, but the very vastness of the scheme means in the first place that there should be the most careful preparation so that there shall be no possibility of repeating the mistakes which have marred feebler efforts in the past, and in the next place that there must be thorough and ardent missionary work to make the people of the State feel the need of doing what is proposed. . . . There are two or three vital features of any scheme we may adopt. In the first place, we must keep steadily before our minds the all-important fact that the canal is not an outworn method of transportation. During the lifetime of the present generation the canal system has received a greater development than the railroad system in every great European country where the topographical conditions permit of its existence at all."

Lieut.-Governor Timothy L. Woodruff said:

"I will admit that there was a time when I questioned the feasibility of the plans advocated by the Canal Commission, but after talking with General Greene, I am confident that the plans recommended by the Canal Commission to Governor Roosevelt can and will by his aid be carried out."

In the course of my remarks on that occasion, I said:

"During the last ten years canal commerce has been on the decline and a condition has been reached which would seem to warrant extraordinary efforts being put forth to regain it. It is generally believed that the construction of a new Erie canal, large enough to accommodate thousand-ton barges will not only regain for New York her commerce, but will hold it against all competition for a century to come. Such a waterway would prevent diversion of commerce through the Canadian canals to Montreal, as well as prevent railways from diverting it to the South Atlantic seaports. The most improved and modernized railroad system could not successfully

compete with the fleets of barges, each of which will carry thirty-three thousand bushels of wheat.

"The survey bill, prepared by the Hon. Frank S. Gardner, carries an appropriation of \$200,000 to enable the State Engineer to make surveys of the proposed routes of the new Erie canal and to prepare plans for a canal that will accommodate such barges and furnish estimates of the cost of the same. . . . These ought to be known in advance in order that the people may act intelligently when the matter is submitted to them for their approval. . . . This is their right as well as it is the duty of the friends of the canal to have the facts known. The utmost publicity should be given to the whole matter of further canal improvement. Our State Engineer, in whom the people have perfect confidence, is required to make public the results of his investigations and surveys, so that full discussion may be had before the people are required to act upon the matter. This will involve some delay, but under the Constitution it is believed that the new route must be defined in the bill which makes appropriation for the work of canal enlargement and such route cannot be determined until the surveys are complete. The bill to appropriate money for the improvement may then be drafted and the route defined and the people made acquainted with all its provisions. . . . That referendum measure is likely to involve the largest appropriation ever made in this or any other State."

Short addresses were also made by General Francis V. Greene, Hon. John D. Kernan, William E. Dodge, Frank B. Baird, and others.

The effect of this large gathering of the influential men of the State to discuss and consider the recommendations of the Roosevelt commission, practically decided the fate of the survey bill then pending in the Legislature. Not a single discordant note had been sounded during the entire evening and the attitude of the Governor on that occasion was most assuring to the gentlemen in attendance.

At the hearings given the following week by legislative committees having the survey bill under consideration, delegations from the Merchants' Exchange and other business organizations of Buffalo were in attendance, consisting of such well-known canal advocates as George Clinton, John Cunneen, Captain J. H. H. Brown, Charles B. Hill, Judge Louis W. Marcus, Seward A. Simons, George W. Frost,

Major Thomas W. Symons, and others. Delegations from the New York Produce Exchange consisted of Messrs. Frank Brainard, Henry B. Hebert, Alfred Romer, and Franklin Quinby; from the New York Board of Trade and Transportation, Frank S. Gardner and William F. McConnell, Esq.; from the New York Merchants' Association, Messrs. S. Christy Mead, W. R. Corwine, Arthur J. Baldwin, John M. Perry; from the New York Merchants' and Manufacturers' Board of Trade, Mr. Alexander R. Smith and Mr. G. A. Heckman; from the Merchants' Association, Mr. Frederick B. de Berard; from the Oswego Board of Trade, Col. John T. Mott, Frederick O. Clarke, and Thomas D. Lewis.

The chambers of commerce and boards of trade of Albany, Troy, Utica, and some other cities, took favorable action on the survey bill and in some instances were represented by delegations in attendance at the hearings.

During the hearing before the Ways and Means Committee of the Assembly, Major Thomas W. Symons was asked by Chairman Allds whether or not a barge canal were feasible? To which question he replied:

"Yes, it is the best thing possible for the State. A ship canal is feasible as an engineering proposition by way of Lake Ontario, but it would be almost fatal to the commerce of New York. It would cost three or four hundred millions."

He was again asked: "Is there water enough for a barge canal?"

He replied: "Yes; one would take Lake Erie waters to Seneca river and that water to Oneida river and lake, and there get plenty of water. That was looked into very carefully and the reports are to be seen in the Engineer's office."

Again: "Is this survey necessary?"

"It is absolutely necessary before the work can be done intelligently."

Chairman Allds then remarked: "We are very glad to have a man before us who can tell us something that is to be relied upon."¹

1. Report in Buffalo *Evening News*, Mch. 15, 1900.

Other features of the bill were discussed by Messrs. Clinton, Hebert, Schenck, Brainard, Cunneen and others.

During the consideration of the survey bill before the Senate and Assembly committees, George H. Raymond of Buffalo, representing the Buffalo Merchants' Exchange, and William F. McConnell, assistant secretary of the New York Board of Trade and Transportation, were in attendance at the capitol, presenting the arguments in favor of its passage to individual members of the two Houses. Both these gentlemen were familiar with the report of the Roosevelt commission and the general features of the survey bill, and had given long and patient study to the matter of transportation. They were also acquainted with most of the members of the two branches of the Legislature and understood something of the attitude of the individual members of the survey bill. They rendered most valuable and effective assistance to Senator Marshall and myself in securing proper consideration and favorable action eventually upon the measure.

During the consideration of the bill in committee, letters, resolutions, petitions and memorials poured in from various parts of the State, in favor of its passage through the Legislature, but the bill was not immediately reported.

Further hearings were had and the Hon. Martin Schenck, former State Engineer and Surveyor, who was recognized as an expert on canal matters in this State, prepared an elaborate statement in which he reviewed the history of transportation over State canals and assigned reasons which to him appeared conclusive as to why the Erie canal should be enlarged as recommended by the Advisory Commission. That statement had its effect upon members of the two Houses, although it required the strong influence of Senator Thomas C. Platt to convince some Republicans that the exigencies of the Empire State demanded a favorable report of the survey bill.

After the Senate Finance Committee by a vote of six to six had refused to report the survey bill favorably, Senator Timothy E. Ellsworth, chairman of the Committee on Rules, on April 4, 1900, reported a rule, which was adopted,

that brought the survey bill immediately before the Senate for consideration. This action was strongly opposed by several members of the finance committee and the scene was intensely dramatic. But Senator Ellsworth, who had been a colonel in the Civil War, and was a fearless and a successful parliamentarian, left nothing undone to secure favorable action on the survey bill. Senators Thomas F. Grady, Nevada N. Stranahan, George A. Davis and William F. Mackey ably supported him.

On the following day, when the matter came on for final action, it received the affirmative votes of 31 Senators and the negative of 16.

When the bill reached the Assembly it was referred to the Committee on Rules, which had under consideration the companion Assembly bill, which I had introduced. We immediately made a poll of the Assembly to ascertain whether or not the committee on rules might be discharged from the further consideration of the survey bill, in case it declined to report the same favorably to the Assembly. There appeared to be 83 members ready and willing to vote to discharge the committee on rules, but that number was insufficient, and during the night of April 5th, and the morning of April 6th, the committee on rules were literally flooded with letters and telegrams. After 11 o'clock on April 6th, shortly before final adjournment, the survey bill was favorably reported from the rules committee of the Assembly, whereupon an amendment was offered by Assemblyman Hyatt C. Hatch of Steuben and defeated, and thereupon I moved the bill to third reading and it was put upon its final passage, where it received 97 affirmative votes to 47 against it.

It was one of the most strenuous fights ever witnessed in the Assembly. The opponents of the measure realized that it meant, not only the expenditure of \$200,000 in making a survey, but the still greater expenditure of sixty-two or more millions of dollars in the construction of a new barge canal through the State.

Pennsylvania, Ohio and some other states had long since abandoned their artificial waterways, and the rural counties

of the State were quite generally opposed to any further expenditure in canal development.

At the critical period in the consideration of the survey bill, Senator Thomas C. Platt, to whom various organizations throughout the State had appealed, indicated to the leaders of the Senate and Assembly in terms that could not be mistaken, that the survey bill ought to be and must be favorably reported from the standing committees of the Senate and Assembly, in order that the members be given opportunity to vote upon it.

Its conception was a master stroke of broad and progressive statesmanship on the part of the Roosevelt Commission, and its passage through the Legislature a signal triumph on the part of canal advocates over opposing forces, worthy the enterprise of the people of the State.

The bill was approved by Governor Roosevelt on April 12th and became chapter 411 of the laws of 1900.

It provided for surveys, plans and estimates of the Erie canal from Buffalo, substantially along the present alignment, nearly to the city of Rochester, and from that point eastward for two surveys, one crossing north of the city across the Genesee river on a high aqueduct, and another by a detour to the south, crossing the Genesee river at water level. There were some changes in the alignment at Macedon, Newark and at Lyons. The route east of Clyde was to extend through the valley of Crusoe creek to and along the Seneca river to the Oneida river, and up the Oneida river into and through Oneida lake and through the valley of Wood creek to New London. From Rome to Cohoes two surveys were provided, one *via* the present route and the other *via* the Mohawk river. Surveys, plans and estimates were also to be made from Mohawk falls to the Hudson near West Troy.

In some portions of the route two and in others three surveys were directed to be made as well as the respective advantages of these several routes. The bill provided that the prism of the Erie should not be less than 12 feet deep throughout with a bottom width of not less than 75 feet, with such side slopes or vertical walls of masonry or rock.

as might be necessary to give a cross sectional area of the canal prism of at least 1125 square feet, except in the vicinity of locks, aqueducts and like structures, and through cities where modifications were deemed advisable and necessary.

The bill further provided that there shall be not less than 11 feet of water in the locks, which were to be not less than 310 feet long in the clear and 28 feet wide, with 11 feet depth of water on sills; and that the locks should be capacious enough to pass two boats at one lockage, and provided with machinery necessary for drawing boats in and out of such locks.

The bill also provided for surveys, plans and estimates for improving the Oswego canal so as to secure a depth of not less than nine feet of water, except over aqueducts and other structures where there was to be at least eight feet of water, and the locks were to be enlarged so as to admit of boats with a draft of eight feet and width of $17\frac{1}{2}$ feet, and a length of 104 feet.

Surveys, plans and estimates for the improvement of the Champlain canal were also directed to be made, for deepening said canal to seven feet of water and to provide locks which would admit of the passage of boats having a draft of six feet, a width of $17\frac{1}{2}$ feet and a length of $98\frac{1}{2}$ feet.

Surveys were also made at various points between Fort Edward and Waterford, to ascertain whether it were cheaper to improve the Champlain canal along its present route or to canalize the Hudson river, and to determine whether in the interest of the State the route between these points should be in part or wholly *via* the present canal or in part or wholly *via* the Hudson river.

All the surveys, plans and estimates, together with other data collected during the surveys, together with the calculations relating thereto, were required to be presented to the Governor on or before January 1, 1901, and he was required to submit the same with his own recommendations to the Legislature before January 15, 1901.

The law also provided that the State Engineer and Surveyor, when authorized by the Canal Board, should make

surveys, plans and estimates of other routes in addition to those specified in this act.

The bill was a comprehensive one and dealt broadly with the whole subject of internal waterways to connect lakes Erie and Ontario on the west and Lake Champlain on the north, with the Hudson river.

The routes defined in the bill were along natural water-courses and substantially those utilized in the 17th and 18th centuries as highways of commerce, which have been quite fully described in the preceding chapters of this paper.

Soon after the bill became a law, the State Engineer and Surveyor, Edward A. Bond, appointed a Board of Advisory Engineers, composed of the following well-known engineers: Hon. Elnathan Sweet, ex-State Engineer and Surveyor, Chairman; George S. Morison, member of the Isthmian Canal Commission; Major Thomas W. Symons, of the Corps of Engineers, U. S. Army; Prof. William H. Burr of the Isthmian Commission; and Major Dan C. Kingman of the Corps of Engineers, U. S. Army. In April, 1900, Mr. Bond also called to his assistance David J. Howell as consulting engineer, Trevor C. Leutze as assistant consulting engineer, Wm. B. Landreth, James J. Overn, James H. Brace, A. E. Broenniman, J. T. N. Hoyt, S. J. Schapleau, and others, who constituted a board of consulting engineers. He also appointed as a board of engineers on the high lift locks, Elnathan Sweet, George S. Morison, Major Thomas W. Symons, William H. Burr and Major Dan C. Kingman. He also called upon Emil Kuichling, Geo. W. Rafter, S. M. Paul, George C. Mills, J. Nelson Tubbs, Prof. E. A. Fuertes, Prof. Gardner S. Williams, Edwin C. Paul, Edward C. Murphy, and others, for special information bearing on the questions under consideration.

The magnitude of the work devolving upon the State Engineer under the survey bill may be judged somewhat from the extent of the surveys, exceeding upwards of 450 miles in length, and through some portions of the route involving two or three independent surveys; as well as plans and estimates, together with a report on water supply, various forms of hydraulic and electrically operated locks,

bridges, dams and other incidental problems largely unsolved in canal construction in this country. The Engineer's report fills a volume of upwards of a thousand pages and was submitted to Governor Odell on February 12, 1901, ten months to a day after the survey bill was approved.

In accordance with the suggestions made by Governor Roosevelt at the canal dinner that "there must be thorough and ardent missionary work done to make the people of the State feel the need of what is proposed," a second annual State convention was called on May 1, 1900, to meet in the City Hall of Syracuse on June 6, 1900. Among the questions proposed for the consideration of the convention was "The State Canals and their Improvement." The board of managers of the New York Produce Exchange, among other things, proposed the following: "The perpetuation of the canal system as the best means of safe-guarding the commerce of the State, and that they should be enlarged, deepened and modernized."

The Merchants' Exchange of Buffalo, after reciting the dependence of manufacturing industries upon cheap transportation and the fact that "the experience of the world has shown that natural or adequate artificial water routes furnished today the cheapest possible transportation," resolved that the future prosperity of the entire State demanded the "improvement of its waterways on lines commensurate with the demands of commerce, thereby rendering it possible to make the State of New York the seat of the greatest manufacturing industries in iron, steel and copper on the continent; to foster and increase our present great manufacturing interests and to preserve the commercial supremacy of the State."

Resolutions of similar import were proposed by other commercial bodies of the State for consideration at that convention. There were thirty-six delegates from Buffalo and its commercial organizations, and delegates were also present from the principal cities, villages and commercial bodies of the State, but in larger numbers than at the State Commercial Convention that met in Utica the year before. Among the Buffalo delegates were several gentlemen, since

deceased, whose services and advocacy of all measures tending to promote canal improvement entitle them to our grateful remembrance. Among these were Theodore S. Fassett, Marcus M. Drake, John Cunneen, John Laughlin, John Esser and Frederick C. M. Lautz.

The name of Alfred Haines, who had long been devoted to the general proposition of canal improvement in this State, does not appear in the list of delegates to that convention, although he had attended many other canal gatherings in various parts of the State and rendered services of great value to the commercial interests of the State. The Syracuse convention was one of the landmarks in the history of canal affairs in New York State, as may be judged from the large number in attendance and the results of its deliberations.

Important addresses were made by distinguished canal advocates; by the Hon. George Clinton; Gustav. H. Schwab of New York, on "Canals and the Foreign Commerce of New York"; by Hon. Abel E. Blackmar of New York, on "Railroad Discrimination against New York and the Remedy"; by Major Thomas W. Symons of Buffalo on "The State Canals and their Improvements"; by Willis H. Tenant of Mayville, on "The State Canals and their Improvement," and by Hon. Franklin Edson of New York on "Canal Improvement, a non-partisan Question."

Mr. Abel E. Blackmar, who has since been elevated to the Supreme Court bench in the 2nd Judicial District, was for years the counsel for the New York Produce Exchange in its litigation before the Inter-State Commerce Commission and other tribunals, over differential and other questions affecting the commerce of the port of New York. In the course of his speech before the State Commerce convention he said:

"Year by year the ports, especially those to the south, which have the larger differential, have encroached upon the trade of New York. . . . The system of differentials which affect grain-moving from the lake ports by rail to the Atlantic coast, is aimed directly at the trade of Buffalo in favor of Erie for the Philadelphia trade and Fairport for the Baltimore trade. Neither are interior points like

Rochester and Syracuse unaffected. The rail rates on coarse freights from Syracuse and Rochester to the seaboard are the same as from Buffalo. This subjects such freight to the influence of the former lake differential and practically, as far as freight rates upon this class of products are concerned, brings Duluth within a cent a bushel as near Philadelphia and Baltimore as Syracuse is to New York. . . . Existing conditions had not permitted an arrogation of this discrimination by the railroads themselves. . . . But there does exist within the power of the people of New York a remedy which is sure and effective. There is a transportation agency which can never be interested in any termini except New York or Buffalo, nor in any interior cities except such as Rochester, Syracuse, Utica and Albany. This agency can never make agreements with railroads to divert traffic to any other ports; it can be a party to no scheme of imposing and maintaining arbitrary charges for lighterage or elevators; it can serve only the people of New York and it can restore to New York in a decade the trade which has been laboriously and steadily diverted by the railroad companies. . . . This agency is an improved and large navigable waterway from Lake Erie to the Hudson river."

Judge Blackmar for many years acted as counsel for the New York Produce Exchange and other commercial bodies in framing statutory and constitutional canal measures and was associated with the Hon. George Clinton of Buffalo and John G. Milburn of New York in the defense of the referendum measure of 1903, when that law was attacked on constitutional grounds before the Attorney General of the State.

Major Thomas W. Symons made a strong, lucid address on that occasion, setting forth in detail the proposed route of the new barge canal and the reasons which had led the commission to its conclusions in recommending the same. He strongly opposed the proposition for the construction of a ship canal and urged upon the convention the construction of a canal capacious enough to admit of barges carrying one thousand tons of freight as the most economical and most serviceable waterway between the Great Lakes and the sea. His address was listened to with great interest because it was generally recognized that to Major Symons as much as to any other of the Roosevelt commission was undoubtedly due the recommendation of a barge canal.

It was at this convention that Willis H. Tennant of Mayville made his first appearance as a canal advocate and was welcomed by all those who understood that he represented a county wherein anti-canal sentiment was supposed to predominate. He made a forceful and convincing speech from the standpoint of a farmer, which elicited commendation from the delegates from various parts of the State. Mr. Clinton and Mr. Schwab also made strong and convincing addresses during the sessions of the convention.

The most serious problem under consideration at that convention was the form of endorsement that ought to be given to the canal project as recommended by the Roosevelt commission. The Canal committee was headed by George Clinton of Buffalo, and there were associated with him Major Thomas W. Symons, John Laughlin, George H. Raymond, and myself, from Buffalo; George B. Sloan, from Oswego; Henry B. Hebert, Gustav H. Schwab, Abel E. Blackmar, and Franklin Edson of New York; Willis H. Tennant of Mayville, Cornelius B. Kloff of Staten Island, and others. The committee consisted of twenty-five members selected from all parts of the State.

To this committee were referred all the resolutions in any way affecting the canal question. When it went into session all these matters were taken into consideration, but the most important question was the report of the Roosevelt commission embodying the recommendations as to the feasibility of various routes as well as the cost by sections and what action it was wise for the convention to take in relation to that report in advance of the surveys, plans, and estimates authorized to be made under the survey bill. It was a delicate matter to decide definitely before this information was obtained. Much time was given to the consideration of all these matters and in formulating its report. The committee finally agreed upon and reported the following resolutions, which, notwithstanding the opposition of John I. Platt, were, with substantial unanimity adopted by the convention:

"We recognize that for three-quarters of a century the canal system of the State has been the principal factor in securing and promoting our commercial prosperity. The chief results have been the up-building of industrial and commercial centers along the lines of the canals and making New York City the commercial metropolis of the Western Hemisphere.

"These great centers of population have furnished markets for agricultural products of the State. The continued growth and prosperity of these industrial centers are, therefore, vitally important to our agricultural interests.

"While affording cheap transportation for products raised and consumed by our people, the canals have kept down railway freight rates on local traffic in all parts of the State.

"While the railroads have minimized their operating expenses and laid out vast sums of money in multiplying their carrying capacity, no improvements have been made in canal facilities for nearly forty years. They have become inadequate to the requirements of our State commerce.

"The vast canal tonnage that gave New York its supremacy is largely diverted to rival routes. One of these is a 14-foot canal completed this year from the Great Lakes to the seaboard *via* the St. Lawrence river to Montreal.

"The interests of the great trunk lines prevent their protecting the commerce of this State. By agreements between them establishing differential rates a large portion of the commerce naturally tributary to New York has been taken from us. An improved canal will be an effective remedy.

"The experience of the world has shown that natural or adequate artificial water routes furnish today the cheapest possible transportation.

"The greatest centers of manufacturing prosperity are found where raw materials and manufactured articles can be moved to and from the factory at the lowest rates.

"An increase of manufacturing industries within the borders of the State of New York will of necessity benefit the farmer, the wage-earner and the merchant, as well as the manufacturer.

"Your committee, therefore, recommends the adoption of the following:

"*Resolved*, That the future prosperity of the entire State requires the improvement and enlargement of its canals in a manner commensurate with the demands of commerce and to a capacity sufficient to compete with all rival routes."

The recitals in this report set forth clearly indisputable facts showing what the canals had done and the importance of their improvement. The resolution following is a broad declaration in support of such improvement in a manner commensurate with the demands of commerce without specifically limiting the improvement to that recommended by the Roosevelt commission, the feasibility and cost of which being still problematical.

In commenting on the work of the convention after its conclusion, Mr. Howard J. Smith, one of the Buffalo delegates and a well-known authority on transportation questions, said :

"The feature of the convention was the unanimity of sentiment in favor of canal improvement. The report of the State Canal Committee made last January has been in the people's hands a sufficient length of time to be thoroughly understood and the great majority of delegates were united in favoring the general plan recommended by that report. . . . After the survey is completed we shall know the cost of the thousand ton barge canal and if that cost is not too high, a convention to be called next January will undoubtedly declare in favor of such canal. The Buffalo delegation are fortunate in having three leaders of canal sentiment among its number—George Clinton, Major Thomas W. Symons and Henry W. Hill—who have done and are doing as much work for the canal as any three men in the State, and the strong position they hold make the influence of Buffalo a very positive factor in the convention."

XXII. PROGRESS UNDER THE STATE'S NEW CANAL POLICY.

The effect of this convention and the publicity given to its resolutions in the press throughout the State, was salutary and tended to keep alive the interest in the one subject which had received more attention than any other during the last century. Many of the interior towns were represented in the convention and united in supporting the resolutions presented by the canal committee. This gave them force throughout the State and in a measure accomplished what Governor Roosevelt had strongly urged in his speech at the canal dinner at the Waldorf-Astoria a few months before.

On the motion of Senator John Laughlin committees were appointed by the convention to appear before the Republican and Democratic State conventions to urge the insertion of a plank in their respective platforms favoring canal improvement. Both conventions so resolved.

Commercial bodies in various parts of the State held meetings to consider locally the general proposition of canal improvement, and among such was the dinner given by the Utica Chamber of Commerce on September 18, 1900, at which Willis H. Tennant of Mayville was the principal speaker. In the course of his interesting address on that occasion he said:

"The question of canal improvement is of course simply a business proposition, which if candidly considered must be viewed as a business man would look at it, were it a private enterprise owned by himself, while possessing the resources of our great State and occupying a position to derive all the benefits that may follow its improvement; or, at the same time suffer whatever loss might follow its abandonment. Its consideration should be free from every prejudice—sectional and otherwise; because, to improve the Erie canal to a practical plane of efficiency, which can not be less than that which will make a water route capable of controlling freight rates between the great inland seas of the Northwest and tide water deep enough to enable the vast inland commerce to be delivered direct to the great ocean freighters, waiting to receive and bear the same away for distribution in the markets of the world, it is conceded will cost millions of dollars."

Speaking of the facilities afforded by railways, in the course of the same address, he said:

"We have also noted the fact that in 1851, almost half a century ago, a first-class railroad was completed from tidewater, near New York city, through the southern part of our State to the shore of Lake Erie, touching at one of its finest harbors—in the city of Dunkirk, in our own county. It was thereby in a position to take the commerce of the seaboard direct to the freight carriers upon the Great Lakes, and exchange the same for their cargoes brought down from the West and carry them to the seaboard with all the inland products of forest, mills and farms in the southern section of our State.

"At that time it was regarded as a masterly stroke of business enterprise, and one that could not fail to be successful. Yet, the city of Dunkirk has never acquired a population greater than 15,000, nor have any great cities along this great through line of railway been built. In fact, only one city having a population as great as 35,000, and only two or three having a population greater than 8,000 or 10,000, are situate upon this great line between Dunkirk and the great harbor of New York. The commerce of the Great Lakes steadily increased; more freight products for inland carriers were offered at the harbors of lower Lake Erie, year by year, for transportation to New York and the seaboard. More and more freight for inland carriers has been offered at New York every year for shipment across our State to the Great Lakes, and the business centers of the West and Northwest. And yet, this great line of railroad making direct connections between these Great Lakes and the principal seaport of our country, has carried but very little of it. Why? Certainly business men building a great railroad for money-making purposes would take all the freight offered their road if they had the cars; and as much as possible with the cars at their command. They would surely charge enough for carrying it to make it profitable. And why, then, did this railroad not do a very much larger business? What situation could have been more favorable? There must be a reason for it and we will look farther."

In the month of December, 1900, George H. Raymond of Buffalo presented an argument in relation to the iron and steel traffic over the thousand ton barge canal and the possibilities of ship building in New York Bay, in the course of which he said:

"The canal and river section would be able to make the iron and steel for the world, and around the shores of New York Bay would be built the navies of the world for war or for peace. The possibilities, in this direction, are not dreamed of by the average citizen of the State. These statements are not idle dreams, but are based on a tendency as clear as it is certainly gratifying to the business prospects of the State. . . .

"The one thousand ton barge canal plan is the only proposition presented in fifty years that is to the advantage of every interest in the State. By bringing this great iron and steel industry to the State which cannot come in any other way, the laboring man will find more employment, the farmer will find enormously increased demand for his products and closer to his farm."

He had addressed the Farmers' Congress at Albany, N. Y., during the month of February preceding, on the subject of the dependence of farm communities upon manufacturing centers as affording markets for their products and dwelt at some length upon the possibilities of the development of iron and steel industries along the enlarged Erie and other waterways of the State. He afterwards became the secretary of one of the principal canal enlargement committees of the State and did very effective work in that capacity.

During the legislative session of 1901, various propositions were presented and considered with a view of carrying into effect the results of some one of the routes considered in the report of the State Engineer and Surveyor, which had theretofore been presented to the Legislature.

The Canal committees of the Senate and Assembly took these matters into consideration, and on April 4th the Committee on Canals of the Assembly through its chairman, the Hon. Thomas D. Lewis of Oswego, reported a bill entitled "An act making provision for issuing bonds to an amount not to exceed \$26,000,000 for the improvement and enlargement of the Erie canal, the Champlain canal and the Oswego canal, and providing for the submission of the same to the people to be voted upon at the general election to be held in the year 1901." The same bill had been introduced by Senator George A. Davis of Buffalo, chairman of the Canal Committee of the Senate.

Soon after the introduction of this bill communications were presented to the Assembly from the New York State Grange, the New York State Farmers' Congress and the New York State Tax and Transfer Tax Reform Association, in opposition to the measure, assigning various reasons therefor.

Resolutions were also adopted on April 8, 1901, at a meeting of the Canal Association of Greater New York, held at the New York Produce Exchange, comprising seventeen organizations within the city of New York, protesting against the passage of the measure on the ground that a

"thousand ton barge canal is the minimum of improvement that should be undertaken and that the expenditure of the money of the State on any less improvement would therefore be an unwise expenditure of the public funds."

The bill under consideration had been introduced in compliance with the recommendations of Governor Odell "that the question of improving the canals along the line of the Act of 1895 be submitted to the people at the coming election in the belief that it will meet with greater approval and that the expenditure can be more easily met, and that it will serve all the purposes for which the canal was originally designed."¹

On the introduction of the bill in the Assembly a vigorous fight ensued over its reference, in which Assemblyman Edward R. O'Malley of Buffalo and other Erie county members took a prominent part and by their exertions saved the bill from being sent to the Committee on Ways and Means. In that contest, however, the New York and Kings county assemblymen voted with the anti-canal men. Their attitude on this occasion divided canal forces throughout the State and it was the most hopeful outlook for defeating canal improvement entirely in this State that the rural members had for a decade witnessed in the Legislature. The improvement contemplated a waterway spacious enough to admit the passage of boats carrying 450 tons and was considered adequate to preserve for a generation at least the commerce of the State. Canal advocates "up the State" were inclined to favor the measure lest they wholly fail to secure any larger improvement. Political parties were reluctant to endorse the Odell referendum measure on account of the opposition from Greater New York, and after a long conference of the Republicans in the Executive Chamber it was decided by a majority to recommit the bill with instructions to strike out the enacting clause, and that motion was made by Senator Ellsworth, who had been and still was an active canal advocate, but fully realized the impossibility of passing the measure against the opposition of Greater New York.

1. See N. Y. Senate Journal for 1901, p. 864.

It was on that occasion that Senator John Raines suggested that further time be given under the five-minute rule "to listen to the funeral oration." To which I replied "that the voting down of canal improvement might be the occasion of a funeral oration over the party that took that course."

Senator George E. Green, who had been a member of the Roosevelt commission and had recommended the barge canal improvement scheme, said:

"If these were canal funeral orations, I believe the obsequies of that party would be pronounced in the near future. . . . We need the canals. I come from an anti-canal Senate district. I want to say that we legislators are to blame for this anti-canal sentiment. We go around our districts inveighing against the canals for political effect and our statements have their effect upon the people. Hereafter let us go about telling the way canals will improve the commerce of the entire State. The people will get an improved canal some time. I hope before next year's session of this body that the divided canal interests of this State will come together on the canal improvement question."

This action of the Senate resulted from the division in the canal forces throughout the State over the canal bill of 1901, and left canal matters in a very unpromising condition at the close of that session. It was evident that no progress could be made, unless there were substantial agreement among the commercial bodies of the State as to the character and magnitude of the work to be done. The expense of the construction of the waterway recommended by the Green Commission was so much greater than conservative canal men believed could be carried forward that they were ready and willing to accept an improvement far less expensive and much less capacious. The hostility, however, of the commercial bodies of Greater New York to any project involving a minimum of improvement less than a thousand-ton barge canal, was such that there was little or no hope of accomplishing anything other than that character of a waterway.

After the close of the legislative session of 1901, conferences were held between canal advocates in various parts

of the State, with a view of arriving at some agreement.

A third State Commerce Convention assembled in the Merchants' Exchange Chambers at Buffalo on October 16, 1901, and remained in session two days.

The address of welcome was delivered by the Hon. O. P. Letchworth, president of the Buffalo Merchants' Exchange, and addresses were made on the following subjects by the following named gentlemen: "The Future Canal System of the State of New York," by Capt. M. M. Drake, of the Buffalo Merchants' Exchange; "The Business Interests of Western New York and the Barge and Ship Canal Propositions," by S. E. Filkins, of the Medina Business Men's Association; "The Proper Position for Rochester on Water Transportation," by Horace G. Pierce, of the Rochester Wholesale Grocers' Association; "The Waterway Question," by John A. C. Wright, of Rochester; "Practical Water Transportation for the State of New York," by Henry C. Main, of Rochester; "A Comparison of the Barge Canal with Deep Waterways," by George W. Rafter, C. E., afterwards author of the "Hydraulogy of the State of New York"; "Ship versus Barge Canal," by Capt. Charles Campbell of the Marine Industrial League of New York; "Water-borne Freights," by Hon. Lewis Nixon of the New York Board of Trade and Transportation; "The Preservation of our Waterways," by Thomas Dorrity of the Western Waterway Transportation League of North Western New York; "The Practical and the Impractical in Water Transportation for the State of New York," by Gordon W. Hall, of Lockport; "The Importance of the Thousand Ton Barge Canal to Western New York," by Edward I. Taylor, of Lockport; "Importance of the Canal Waterways," by John McCausland, of Rondout; "The Erie Canal Vital to the best Interests of the State of New York," by Dr. J. D. Bonnar, of Buffalo.

This convention was largely attended by delegates from various parts of the State, representing various commercial bodies and political divisions of the State. Among the delegates were such well-known men as ex-Mayor Charles A.

Shieren, Gustav H. Schwab, Frank S. Gardner, ex-Mayor Franklin Edson, William R. Corwine, Frank Brainard, G. Waldo Smith, Henry B. Hebert, Wm. G. Smythe, John V. Barnes, Albert Kinkel, and others of New York; A. M. Hall, Col. John T. Mott and Hon. George B. Sloan, of Oswego; Hon. Thomas M. Costello, of Altmar; Hon. Robert J. Fish, of Oneida; George A. Fuller, of Watertown; George S. Dana and Henry D. Pixley, of Utica; W. H. Freer, of Troy; Wilbur S. Peck and Francis E. Bacon, of Syracuse; John R. Myers, of Rouse's Point; Franklin Oakes, of Cattaraugus; Hon. Thomas D. Lewis, of Fulton; Thomas S. Coolidge, of Glens Falls; Alfred Haines, Theodore S. Fassett, Marcus M. Drake, John Cunneen, George P. Sawyer, Ogden P. Letchworth, Richard Humphrey, George H. Raymond, George Clinton, Henry W. Hill, Fred C. M. Lautz, and others of Buffalo.

Hon. John D. Kernan of Utica was elected president; Hon. Frank S. Gardner, John Cunneen and Correl Humphrey were elected secretaries; and Harvey W. Brown of Rochester, treasurer.

A full report of this convention will appear in succeeding pages of this collection.

Shortly after the opening of the session and on January 20, 1902, Senator George A. Davis of Buffalo introduced in the Senate a bill entitled "An act making provision for issuing bonds to an amount not to exceed \$28,800,000 for the improvement of the Erie canal, and providing for the submission of the same to the people to be voted upon at the general election to be held in the year 1902," which was read a second time and referred to the Committee on Canals.¹ The same bill was introduced in the Assembly by Assemblyman John A. Weekes, Jr., of New York.

The bill was amended from time to time and the amount increased to \$31,800,000 in order to include the improvement of the Champlain canal.² This measure did not contemplate the improvement of the Oswego canal, and that aroused the opposition of members from that portion of the

1. See N. Y. Senate Journal for 1902, p. 74.

2. *Ib.* p. 1058.

State. Notwithstanding the fact that the bill passed the Senate on March 18th, by an affirmative vote of 28 to 15, it failed to pass the Assembly.

Among those voting in the affirmative was Senator George E. Green of Binghamton, one of the lay commissioners, who recommended the barge canal improvement and who was thoroughly familiar with the subject. He was called to account by the *Sunday Star* of that city for his vote, and in his formal answer thereto, among other things, he said:

"After a year of study, and I trust intelligent deliberation in conjunction with able associates on the committee (among whom at the beginning, opinions were as divergent and as many as the committee numbered), I became thoroughly convinced that it would be against the interests of the State to turn the canals over to the Federal Government (and the Government apparently doesn't want them), and that a ship canal is not desirable.

"I favored the 1,000 ton barge proposition and the vote of the committee was unanimous because, from the best and most trustworthy information and statistics obtainable, a barge of this capacity would realize the minimum rate per ton mile.

"The ocean liner is built with special reference to ocean navigation, the lake vessel for navigating the lakes, while the barge is practically calculated to afford a cheap and efficient method for canal transportation.

"Put the boat built for ocean travel within the waters of a suitable ship canal of a length approximating the Erie and the slow pace made necessary, combined with the cost of equipment, coaling and crew, would make the expense of handling freight per ton mile in excess of the cost of handling first by lake vessel, breaking bulk at Buffalo, thence by barge to New York, there loading and transporting by ocean steamer to point of destination. . . .

"Improve and make efficient the canals of the State and in similar ratio improvement and increase will enure to the benefit of the State by the upbuilding of old and the establishment of new commercial and industrial labor-employing interests.

"I am usually optimistic in my views, but at the hazard of being rated a pessimist and without hope of reward to myself, except in the conscientious performance of duty, I want to sound a note of alarm and candid warning against throwing up the canals and turning over completely the commercial and industrial interests of the

State to the railroad corporations which are rapidly being dominated by one central power, otherwise, when too late to make suitable amends, we shall be forced to try the dangerous expedient of a paternal form of government so far as it relates to railroads which have been granted in unstinted measure, vast and valuable public rights of franchises which are being used for the advantage of the few, and to the detriment of the many.

"One only needs to refer to the newspaper files for the past few months to discover the tremendous and appalling advances which have been made in the consolidation and "Community of Interests" between the great railways of the United States and especially the railroads traversing the State of New York.

"Not content with the ownership of the railroads, these railroads, or the eminent gentlemen who control them, are reaching out for the control of the great trans-Atlantic steamers, as well as many transportation facilities of the inland seas and waterways.

"Ridicule the poor old Erie canal all you may, but the fact still remains that in its present inadequate condition, it serves to regulate to a great extent the rates of transportation not only for the Empire State, but in connection with the Great Lakes, the rates on through traffic.

"Many well informed men believe that for years past the managerial hands of railroads have sought to control the Erie canal and the canals tributary thereto.

"Supposedly in the interest of the 'poor boatman,' a law was enacted some years ago, providing that no corporation or company having more than fifty thousand dollars at its command could operate boats on the Erie canal, thus preventing capital of any considerable magnitude from seeking lucrative employment by establishing an adequate fleet of canal boats and sending out freight and traffic solicitors for the purpose of securing increased tonnage for the canal.

"Through a careful and doubtless wisely conducted, practical campaign in behalf of the railroads, some newspapers of the State, formerly favoring the canals, half unconsciously, have been subsidized or made friendly to the railroad interests while the opposition to the canals has been proportionately increased.

"The railroads, in order to prevent the canals from securing business have time and again entered into traffic arrangements with shippers, giving a rate for twelve months in a year, nearly and often quite as low as canal transportation facilities afford for seven months of the year.

The campaign against canals upon the part of the railroads and their allied interests has been efficient and incessant. The best minds

and the strongest influences have been employed, not only to defeat the purpose of the canals in business ways, but especially to overcome the canals by preventing proper legislation or inventing that kind of legislation which kills.

"Incidents may be cited, both diverse and numerous, where the Erie canal and its branches have not only established, but controlled local and through freight rates; not alone during the period of navigation but for the twelve months of the year.

"It is to me passing strange that those residing in the counties not immediately located on the canals, apparently feel that the canals are of no moment to them. Northern New York and the southern tier counties have, through various ingenious methods, been carefully educated to believe that the waterways of the State have no controlling influences over the railroad rates in their respective localities.

"When the railroads paralleled by the canals are forced to establish freight rates to meet canal competition, it is obvious that the railroads of the State ever so remote from the canals must meet the competition or forfeit their share of business.

"This applies not only to through rates of freight, but the railroads which must necessarily look to the protection and fostering of local industries and products, whether of the farm or the factory, must afford to them similar rates as are enjoyed by those located on the railroads which border on or parallel the canal."

These are some of the reasons which actuated Commissioner Green to reach his conclusion on the barge canal project.

Mr. Thomas D. Lewis, chairman of the Committee of Canals of the Assembly, reported from that committee a substitute bill for the Weekes bill, which provided in substance for the improvement of the Erie, Champlain and Oswego canals, and carried an appropriation of \$37,200,000.¹ The substitute bill, however, did not pass the Assembly. The session closed without enacting any canal improvement measure. There were, however, some steps taken toward canal improvement in this State. It was during that session that I formulated and introduced in the Senate the proposed constitutional amendment, adding a new section to Article 7 of the Constitution, to be known as Section 11.

1. See *Assembly Journal* for 1902, p. 2825.

which provided for the application of the surplus moneys of the treasury to the liquidation of the bonded indebtedness of the State, by providing that such surplus moneys be set apart in the sinking fund to meet the interest and principal of the bonded indebtedness of the State, provided the same were sufficient, and in such event to suspend the provisions of Section 4 of Article 7, requiring the imposition of a direct annual tax to raise money to meet the principal and accruing interest of the bonded indebtedness of the State.¹ That constitutional provision was passed through the Senate and Assembly without amendment and it also passed the next session of the Legislature and was approved by popular vote in 1905, and has enabled the State to set apart from its surplus funds sufficient moneys to create a sinking fund to meet the principal of the bonded indebtedness and to pay the accruing interest of such indebtedness without the imposition of a direct tax during the last three fiscal years.

During the legislative session of 1903, I formulated and introduced a proposed amendment to Section 4 of Article 7 of the Constitution, extending the bonding period for which State debts might be authorized, from eighteen to fifty years. That amendment passed the Legislature of 1903 and 1905, and was approved by popular vote at the general election in the latter year. These two constitutional amendments are now in operation, and work a substantial modification of the fiscal policy of the State with reference to the creation and liquidation of State debts which have assumed large proportions owing to vast public improvements recently undertaken.

The modern method of financing large undertakings involving the creation of a bonded indebtedness, is to spread the payment over a long period of time and thereby relieve the present generation from full payment; and this seems to be justified inasmuch as the benefits will accrue quite as much to succeeding generations as to the present one.

The failure of the Legislature to pass the canal referendum measure of 1902 was not attributable so much to the indisposition of the people to go forward with canal im-

1. *Ib.* p. 74.

provement as it was to the differences of opinion that obtained among canal advocates as to the character and extent of the improvement. The Governor and more conservative advocates were responsible for the introduction of the referendum measures of 1901 and 1902. The first encountered not only the opposition of the anti-canal rural counties, but also that of the ultra canal advocates, who favored a much more capacious waterway, ranging from a 14-foot waterway to a ship canal. The second measure was opposed by the anti-canal rural counties and by such canal counties as were not included in the scope of the improvement. Chief among these was Oswego, which, from the first, had been a strong canal county and whose commerce on Lake Ontario ran back to the early part of the 18th century.

The contention that the tonnage over the Oswego canal had been relatively smaller than that over the Champlain and Erie canals, and therefore was not such as to warrant a large expenditure of money for further improvement, it was claimed (by such representative citizens as the chairman of the Assembly Canal Committee, the Hon. Thomas D. Lewis, Assemblyman Thomas M. Costello, Senator Nevada N. Stranahan, Hon. George B. Sloan, Col. John T. Mott, Hon. Patrick W. Cullinan, Frederick O. Clarke, and others), left out of consideration the fact that the tonnage of the Oswego transported east and west of Syracuse was credited to the Erie to the disparagement of the former. It was also claimed that, although Sodus and Irondequoit bays were originally promising Ontario ports, Oswego had outstripped these and all others; and in consideration of the further fact that the tonnage over the improved Canadian waterways would be more or less tributary to that of the Oswego canal, as had been the tonnage over Canadian waterways in the past, that whatever improvement was decided upon for the Erie and Champlain canals, the same ought to be extended to the Oswego.

As it has already been shown, Oswego had been the principal trading post and commercial port on Lake Ontario for nearly two centuries, notwithstanding the early

trade relations at Niagara and the large importations at Ogdensburg on the St. Lawrence, making the latter port one of the principal ones on the northern frontier, whose harbor is being improved under the supervision of the Federal Government through the efforts of Congressman George R. Malby, for many years a leading member of the Legislature and at one time Speaker of the Assembly, and from 1901 to 1905 chairman of the Finance Committee of the Senate.

The Oswego harbor had also been improved by Federal aid and large appropriations were being made from time to time for the construction of its breakwaters. In view of the insistency of the Oswego representatives to have their canal improved along with the Erie and Champlain canals, and the reasonableness of their claim, it was apparent to all familiar with legislative procedure that the canal improvement project would not be easily won without their aid and possibly not against their opposition, for they were strongly represented in the Senate by Hon. Nevada N. Stranahan and in the Assembly by Hon. Thomas D. Lewis, chairman of the Canal Committee. Furthermore, it was apparent to all that the improvement of the Oswego would intercommunicate with Lake Ontario at a point intermediate between the Niagara on the west and Ogdensburg on the northeast, and afford accommodations not only for the commerce of Lake Ontario, but for a large flotilla of other craft that plied in and about the Thousand Islands and on the waters of the upper St. Lawrence.

During the summer and fall of 1902, political parties were engaged in a fierce contest for the control of the State government. Governor Benjamin B. Odell, Jr., was elected by a plurality of less than 10,000 votes over Bird S. Coler. The contest absorbed public attention to the exclusion of canal and other public questions. The canal question, however, continued to receive the consideration of commercial bodies and legislative candidates in counties where canal sentiment was strong.

On December 23, 1902, Hon. Warner Miller, ex-United States Senator, addressed a letter to Governor Odell on the canal question, in which he said :

"The 1000 ton barge canal cannot be constructed in less than eight years, and many persons competent to form an opinion believe it will take nearer twelve years than eight. In that length of time the danger to our commerce will have worked its evil consequences, and a large part of trade will have been diverted through other channels to our rival ports, never to be recovered.

"As we owe our present high position commercially largely to the Erie canal, it is but natural that we should look to some plan of improving the canal to enable us to hold our position of advantage."

After discussing several plans that had been theretofore made by the State Engineer Mr. Bond, he says:

"The nine-foot improvement can be easily finished in three years. With the money all appropriated, and with push and vigor, it can be done in two years. Then, boats carrying 450 tons instead of 220, can make the trip from Buffalo to New York in one-half the time now required, and the actual cost of carrying a bushel of wheat from Buffalo to New York will be less than one cent—probably not more than three-quarters of a cent. While the improvement of the canal is going forward there should be built on State land at Niagara Falls an electric power plant of sufficient capacity to move all the tonnage that can pass through such a canal, which is estimated by experts to be from 10,000,000 to 15,000,000 tons. Put railroad tracks on the towpath (which is already graded) for electric locomotives. Use the power from Niagara as far east as may be found feasible. For the eastern portion of the canal, the Oswego and the Champlain canals bring down electricity from the Adirondacks, or, if an expert examination should show it to be desirable, a power plant could be built in Utica or Schenectady, thus operating the whole length of the canal by electric power. If the plan of diverting the canal through Oneida Lake should be followed, that portion would be operated by tugs if the electric plants were not in readiness when the improvement was completed. An electric engine would haul easily four to six boats of 450 tons each, or 1800 to 2700 tons, and would move them from three to four miles per hour, thus reducing the time of a trip one-half, and thereby doubling the season's work of each boat."

Senator Miller in this letter argues against the 1000-ton barge canal and in favor of the nine-foot improvement, which would accommodate 400 to 450-ton barges. This was known as the Seymour-Adams plan, recommended by Horatio Seymour, Jr., and especially by Campbell W.

Adams, both state engineers at different times, but with the additional feature of electricity for propulsion.¹

The contents of this letter undoubtedly led Governor Odell to insert in his message to the Legislature the suggestion for the electric equipment of the canal system of the State. I have already stated that the German Government had provided the Teltow canal with modern electric equipment for hauling vessels along its course and that experiment may have led to the suggestion on the part of Senator Miller that electricity might be successfully applied as a means of propulsion of vessels over our waterways.² But Dr. Leo Sympher of Berlin informed me in 1905 that as yet electric propulsion on long hauls had not passed its experimental stage and it was impossible to tell whether or not it would be a success commercially, and Mr. Clinton in response to the suggestions of Governor Odell assigned other reasons which, to him, appeared conclusive against the use of electric propulsion on the canals of this State, as will appear hereafter in his argument before the joint canal committees of the Senate and Assembly.

The experiments in electric haulage near Bauvin, France, however, were such as to justify the construction of a plant to provide for canal propulsion for that waterway, over which were transported large quantities of coal to Paris. On this canal the haul was short and the traffic heavy, so that electric propulsion might be used with profit.³

In his message to the Legislature on January 7, 1903, Governor Odell said:

"I have endeavored to give this subject the consideration which its importance demands and have heretofore expressed myself and now reaffirm my belief in the thousand-ton barge plan. I cannot urge too strongly upon the Legislature the necessity for immediate attention to this important problem and while recommending that every consideration shall be given to the various interests involved, we should recollect that above every other claim the prosperity and upbuilding of our State are foremost. While giving all weight to

1. See Report of N. Y. State Engineer Adams for 1897.

2. See p. 116 *supra*.

3. See Report of N. Y. Canal Committee for 1900, p. 52.

the expense involved, we should not be deterred from any expenditure that will hold the supremacy of which we are all justly proud. I hope that the conclusion reached may be so supported by data and figures that there shall be no dissent from the deductions which are thus arrived at, and that the people may be put in possession of every detail that is necessary to enable them to speedily pass upon and express their approval or disapproval of the plans to be submitted.

"In my last message I advocated the deepening of the canals to a nine-foot level, with locks capable and large enough to provide for one thousand-ton barge tonnage. To this subsequently suggestions were added that both the Oswego and the Champlain canals should be equally enlarged. This proposed measure failed of passage, I am convinced, because of an honest belief upon the part of many members of the Legislature that the plan proposed was inadequate to meet the requirements of commerce."¹

In this message the Governor discusses the so-called Ontario route, and calls attention to the fact "that at the time when the canal traffic would be at its heaviest, it would be impossible because of adverse winds and dangers of navigation" to navigate Lake Ontario. Continuing he says:

"So we are forced to the conclusion that the only practical route for canal traffic for a thousand-ton barge would be along the more expensive line which can only be built at a cost under the State Engineer's estimate, and assuming that the bonds were for fifty years and the interest at three per cent. of \$193,980,967.50, principal and interest. This plan only contemplates the deepening of the Champlain canal to seven feet, but the advocates of canal improvement now desire that it should be deepened to a twelve-foot level, which would increase the cost to \$215,000,000."²

Governor Odell discussed several other phases of the problem in this message and lay emphasis upon the point that something ought to be done to prevent the withdrawal of commerce. He suggested the introduction of electric motors and the electric equipment for the rapid propulsion of vessels over the existing waterway which might obviate the necessity of the construction of a thousand-ton barge canal. He also suggested that if the thousand-ton barge

1. N. Y. Assembly Journal, 1903, pp. 3016, 3017.

2. N. Y. Assembly Journal, 1903, p. 3018.

canal plan were authorized, he would "recommend the adoption of a concurrent resolution providing for the reimposition of limited tolls, which would, perhaps, produce revenue enough to provide for the maintenance of the canal, believing that the lowering of the freight rates would be so great that a tollage could be easily met without interfering with the results which it hoped to accomplish under this plan."¹

The effect of this message upon public sentiment was to encourage canal advocates in various parts of the State to unite upon the barge canal project in its full extent.

The commercial bodies of New York City, represented as they were in the Canal Enlargement Association of Greater New York under the chairmanship of the Hon. Henry B. Hebert, a forceful and strong advocate in 1899 of a fourteen-foot canal, were united on the barge canal project that had been recommended by the Green Commission, and of which surveys had been made by the State Engineer and Surveyor in 1900. Accordingly in the early winter a bill was prepared by Major Thomas W. Symons, Hon. Abel E. Blackmar, and others, providing for the construction of a barge canal from the Great Lakes to tidewater. The bill was introduced in the Assembly by Charles F. Bostwick, on January 15, 1903, and carried an appropriation of \$81,000,000 for the improvement of the Erie canal, the Oswego canal and the Champlain canal.² It provided for deepening the Erie and Oswego canals twelve feet, and the Champlain canal seven feet.

A conference was held in Albany on January 26, 1903, of the representatives of commercial bodies in New York, Oswego and Buffalo, which was attended by Alfred Haines and George Clinton of Buffalo; Gustav H. Schwab, William R. Corwine, Prof. William H. Burr and Abel E. Blackmar of New York; E. S. Morrison and Major Thomas W. Symons of Washington; Frank S. Witherbee of Port Henry; and Frederick O. Clarke of Oswego. At this con-

1. *Ib.*, p. 3019.

2. *Ib.*, pp. 36, 37.

ference William H. Burr, professor of engineering in Columbia University and a member of the Isthmian Canal Commission, explained the method whereby the plans and estimates for the barge canal were made; and the prominent engineers employed by Edward A. Bond, State Engineer and Surveyor, in reaching the conclusions set forth in his report under the survey bill.

As a result of this conference the canal bill was modified in some respects and the authorized bond issue somewhat increased before its introduction in the Senate. As so modified it was introduced by Senator George A. Davis, chairman of the Senate Canal Committee, on January 28, 1903, and was entitled "An act making provision for issuing bonds to the amount of not to exceed \$82,000,000 for the improvement of the Erie canal, the Oswego canal and the Champlain canal, and providing for the submission of the same to the people to be voted upon at the general election to be held in the year 1903."¹ It was thereupon referred to the Committee on Canals.

On January 7th, I had introduced a proposed constitutional amendment, adding a new section to article 7 of the Constitution to be known as section 11 thereof.² A concurrent resolution was introduced in the Assembly by Assemblyman Samuel Percy Hooker on February 2d,³ proposing an amendment to article 7 of the Constitution to authorize the construction of a railway by the State in the bed of the canal and its lease upon terms stated in the resolution. It was referred to the Judiciary Committee but was never reported therefrom. The introducer of this resolution maintained that such railway would relieve the terminal congestion and would be more efficacious than any other means of transportation except a ship canal through the State. He conceded that many members of the Legislature assumed that this resolution was only introduced to impede the passage of the referendum measure.

1. N. Y. Senate Journal, 1903, p. 66.

2. *Ib.*, p. 15.

3. N. Y. Assembly Journal, 1903, p. 133.

XXIII. LEGISLATIVE STRIKE OVER THE CANAL MEASURE

The canal measures encountered strong opposition immediately upon their introduction. Organizations were organized in various parts of the State and representatives were sent to Albany to appear before legislative committees at hearings upon these measures. Among these was the veteran editor and canal opponent, Hon. John I. Platt of *Providence*, who called in question Governor Odell's position on the canal question as indicated in his campaign speeches and message to the Legislature. To this Governor Odell replied in substance, that in his letter of acceptance and his message to the Legislature he had clearly indicated that he favored canal legislation, and desired that a proposition be submitted to the people at the next general election. Mr. Platt further stated on that occasion that the Governor told him that he was not pledged to any particular scheme and that the anti-canal men would not have a fight with him as well as the canal men. Later Mr. Platt modified his last remark.¹

Others appeared in opposition to the measure. A large number appeared in favor of it, including such well-known advocates as George Clinton, Gustav H. Schwab, Major Thomas W. Symons, William F. King, S. C. Meade of the Merchants' Association of New York, Captain William E. Cleary, Frederick O. Clarke, W. A. Norris of Fort Ann, and George H. Raymond of Buffalo. In his speech Mr. Clinton summarized the arguments in favor of canal improvement and called special attention to the fact that "no scheme of electric propulsion would work on the canal, as it would confine it and its benefits to the few or the individuals who could use the patented devices for employing electricity as a motor power. This would not do. The canals should be free to all. If the improved barge canal did no more than regulate railroad freight rates, it would be enough to warrant its construction. Commerce followed the lines of least resistance and it was the duty of New York State to make the lines of resistance here as small as possible. This

1. Abstract in the *Buffalo Commercial Advertiser*, Feb. 4, 1903.

could be done by the improved canal." Mr. Clinton also spoke of shipments of ore from the West and the building up of the great steel industries in Erie county, and said: "Such steel and iron plants would spring up along the canal as soon as the ore from the mines and the coal could be brought to them by a waterway with low freight rates."¹

Hon. Gustav H. Schwab on that occasion presented a long and forceful argument in advocacy of the Senate and Assembly bills, in which he reviewed the commerce of the port of New York and the foreign commerce of the country, and made an unanswerable argument in support of the canal measures and the resulting benefits to the State from the construction of the barge canal and the resulting commerce over the same. In the course of this argument, he said:

"In connection with this nine-foot plan of canal improvement, the application of electricity to the work of towing upon the canal has been resurrected. This plan has been frequently discussed in former years, and found impracticable.

"The advocates of the ship canal scheme present a very fascinating and attractive picture of ocean-going steamers taking freight directly from the western lake cities, through the lakes and the canal, and across the ocean, without breaking bulk. To compete with the ocean carrier of the present day, such steamers would have to be of such capacity as to draw at least 30 feet to 33 feet. They will, therefore, require a depth in the canal of 35 feet, with corresponding width and size of locks. They will furthermore require an entire reconstruction of the channels between the lakes and of the harbor works in all lake cities. A ship canal of the depth required and all this reconstruction work on the lakes would involve enormous sums of money never heretofore reached in canal construction. Does any one suppose that the Congress of the United States would ever consent to undertake a work of this magnitude, which would inevitably be the signal for demands from all parts of the Union for the execution of works of similar magnitude in favor of particular localities? New York State would necessarily be obliged to surrender the Erie Canal, and New York's commerce and industries, so far as they depend upon a canal, would thenceforth be at the mercy of a Congressional majority for the appropriations necessary from time to time to maintain the canal and the lake channels and harbors."

1. *Ib.*, Feb. 4, 1903.

"But assuming that all these difficulties, which certainly appear insurmountable, can be overcome, what would be gained thereby? A ship canal that would not be used by ocean-going steamers! The type of vessel used for ocean transportation is totally different from the type in use on the lakes, as the type of vessel on the lakes again differs from that in use on the canals. The ocean-going steamer is built to withstand the storms and heavy weather of the North Atlantic Ocean, and therefore costs twice as much as the lake steamer, which is built for service during only the spring, summer and fall months, being laid up during the winter. The canal barge, on the other hand, is a cheap affair comparatively, and costs approximately one-quarter of the price of a lake steamer. In the opinion of ship builders, it is absolutely impossible to combine the three types in one vessel that would be economical for the trip through the three kinds of navigation required, lake, canal and ocean. An ocean steamer of costly build could not make a better rate of progress through the canal than five or six miles an hour, whereas she is built to make a speed of two or three times as much. The result would be that the great expense attendant upon the navigation of the canal by an ocean steamer would prove prohibitive. The lake and the canal vessels, burdened with a much smaller cost of construction and maintenance, could run much more economically, and would take away the trade from the ocean steamer. The attempt has been made to run steamers from Chicago through the Welland canal, down the St. Lawrence, to Liverpool. Two or three trips were sufficient to prove the impracticability of this combined navigation, and the steamers were then withdrawn.

"Mr. Thomas C. Keefer, Ottawa, Canada, past-president of the American Society of Civil Engineers, makes the following statement:

"As regards the St. Lawrence river, I may state that we find it is better to keep the large vessels or propellers on the lakes, where they can move faster and make more trips in the season of navigation. Very few descend below Kingston, and from there to Montreal barges are used. The barges are loaded at Kingston from the vessel and taken down the river, and business is done more economically in this way than could be done by taking the lake vessels down."

"The ship canal, in view of all these objections, cannot for a moment be seriously considered in connection with the improvement of the waterways of the State of New York, and the argument for such a ship canal can only be used as an obstruction to any improvement.

"The Ontario route for a 1000-ton barge canal:

"To navigate the waters of Lake Ontario and the canal, vessels must be stronger built and heavier than those vessels that are con-

fined to canal navigation, and it can be stated on the authority of competent ship builders that the additional cost of a vessel capable of navigating Lake Ontario and the canal would be approximately 100 per cent. more than that of an ordinary canal boat. This would involve a much higher interest charge on the combined lake and canal vessel. The heavier construction of a vessel capable of navigating Lake Ontario and the canal would cause a loss in carrying capacity amounting to not less than 10 per cent. A fleet of four boats of 1000 tons capacity each would therefore suffer a loss in carrying capacity of at least 400 tons. The cost of maintenance and operation of such boats would necessarily be higher than ordinary canal boats, as not only more men would be required, but crews of higher training and, therefore, better paid. The weather conditions during the early spring and fall on Lake Ontario are such as to render the towing of barges between the ports of Olcott and Oswego not only dangerous, but at certain times impracticable; and only steel barges, of great strength, fitted with sealed hatches, and well found with anchors and chains, would be able to make the passage with impunity. In the opinion of those most competent to judge, canal boats could not be handled over this lake route during the entire season. Insurance companies in New York, with reference to the insurance of vessels on Lake Ontario, state that as underwriters no amount of premium would tempt them to cover the present type of canal boat for traffic on Lake Ontario. They say that even if a new fleet of canal boats were constructed to navigate Lake Ontario and the canal, and therefore of a more seaworthy type than the present type of boat, the rate for that part of the trip on the waters of Lake Ontario would be considerably higher than on the inland voyage during the summer months. In the fall of the year the rate would be from five to eight times as much as in midsummer, and this is confirmed by the insurance companies of Buffalo. The substitution of the lake route for that portion of the inland canal route between Buffalo and Syracuse would deprive a considerable part of the State from the benefits that are expected to result from the improved waterway. The objections to the Ontario route are, therefore, a greatly enhanced cost of transportation, the impracticability of the route owing to the weather conditions during the spring and fall months, and the abandonment of a large part of the line of the present canal.

"The 1000-ton barge canal on the Seneca-Oneida-Mohawk river route:

"This is the route recommended by the Committee on Canals of New York State, appointed by Governor Roosevelt, after mature

deliberation and careful investigation of all the factors entering into the problem. The committee in their very thorough report give, as the cost of transportation on the canal as improved and capable of carrying barges of 150 feet long, 25 feet wide, and 10 feet draft, .52 mill per ton per mile, and the committee state as their conclusion:

"We feel confident that the larger project will result in a transportation cost across the State of New York as low as that by the St. Lawrence canals, which constitute their chief rival at present, far less than any rate which is possible by railroad at any time within the immediate future, equal substantially to the results which could be obtained by a large barge canal or a ship canal, and, in short, would be a complete and permanent solution of the canal problem. It would give New York advantages in the low cost of transportation and the commerce resulting therefrom, which would be possessed by no other State on the Atlantic Coast.

"We believe it is unwise to spend large sums of money in a mere betterment of the existing canal; what the present situation requires is a radical change both in size and management and what we recommend is practically the construction of a new canal from Lake Erie to the Hudson river, following the present canal for something over two-thirds of the distance, and new routes for the remaining distance of a little less than one-third, and utilizing the present structures and prism so far as they can be made use of. We are firmly of the opinion that any less complete solution of the problem will in the end prove to be unsatisfactory, and that while the sum of money required to put this into execution is large, yet the resources of the State are so enormous that the financial burden will be slight.'

"The cost of railroad transportation cannot approach this rate, and it is, in the opinion of the Committee on Canals, as well as competent transportation managers, that it is not probable that railroad transportation can in the near future be reduced below three mills per ton per mile. The great function of the canal has been that of freight regulator, as has been clearly shown by the fact that during the summer months, when the canals are open, the railroad rates uniformly fall, while with the close of navigation on the canals the railroad rates are always raised."

In this speech, Mr. Schwab quoted at length from an article prepared by S. A. Thompson and published in the *Engineering News* on the effect of waterways upon railway transportation in this and other countries, and presented

many data bearing on the general subject under consideration. During the entire campaign for canal improvement and enlargement, Mr. Schwab was one of the most aggressive, intelligent and persuasive speakers on various questions from time to time under discussion. There were other speakers at this hearing.

On February 17, 1903, a second hearing on the Davis-Bostwick bill occurred, which was a joint hearing held at the capitol, and there appeared in opposition to the measure E. B. Norris of Sodus, master of the State Grange, who expressed himself in favor of a Federal ship canal, and asserted that "farm property in Central New York had depreciated 75%"; and W. N. Giles of Schenectady, secretary and representative of the State Grange, who presented resolutions of that organization in opposition to the canal project. There also appeared George A. Fuller, vice-president of the Watertown Produce Exchange, who argued for a trans-State waterway to be constructed by the Federal Government; and Hon. John I. Platt of Poughkeepsie, who cited the history of the railroad development in this country, showing that canal traffic had no effect on freight rates, and renewed his statement that the money paid for canal improvement was a part of the cost of canal transportation. Former Assemblyman Robert J. Fish of the Oneida Chamber of Commerce objected to the bill on account of the proposed change of route from the present alignment through Oneida village to Wood creek and Oneida lake. Mr. A. H. Dewey of Ontario county, George H. Hyde of Cortland county and W. A. Rogers of Jefferson county, appeared and spoke in opposition to the canal bill.

At this hearing there also appeared in favor of the measure George S. Morison, ex-president of the Society of American Civil Engineers, member of the Isthmian Canal Commission and consulting engineer under Mr. Bond in making the survey for the barge canal, who made one of the principal arguments in favor of the measure at that hearing. Among other things he said:

"When the waterways of a State are neglected as those of this State have been, it invariably follows that the business goes to the railways. When the waterways keep pace with the railroads the canals get their share of the traffic and act as regulators of railway rates. The Erie canal cannot in its present shape hope to compete with the railroads. Some of those who have spoken in opposition to this bill have favored a ship canal, but such a canal would be much more expensive and would be of greater interference to the country through which it would pass, as it would have to have a draw-bridge at every farm crossing. The proposition to build a ship canal through this State was taken up by the Federal Government some years ago, but was dropped because it was decided that such a canal would benefit New York State only."¹

He also said that the estimates for the thousand-ton barge canal had been carefully made and that considerable assistance had been gained from the Government survey for a ship canal.

In reply to some apprehension expressed as to the insufficiency of water to supply the barge canal, Mr. Morison said: "Less than one-tenth of the power put into a modern steamship would be sufficient to pump into the canal all the water that could possibly be needed."

There also appeared David J. Howell, a consulting engineer in charge of the barge canal survey, who had theretofore been connected with the United States Deep Waterways survey through the State, and who expressed the opinion that the barge canal could be constructed within the estimates made by the State Engineer and Surveyor.

At this same hearing appeared also Hon. Abel E. Blackmar, counsel for the New York Produce Exchange, William F. King of the New York Merchants' Association and Hon. Edward R. O'Malley of Buffalo, who spoke in favor of the measure. Assemblyman O'Malley in closing the argument before the committee said: "Even if the cost of the improved canal had to be borne by direct taxation, the expense to individual taxpayers would be so little that no Granger could afford to leave his corn-husking long enough to go a few miles to town to vote against it."²

1. Abstract in the *Buffalo News*, Feb. 18, 1903.

2. *Ib.*

Senator George A. Davis, the introducer of the referendum measure in the Senate, and chairman of the Senate Canal Committee, presided over the joint hearings and occasionally indulged in a mild *jeu d'esprit*, much to the discomfort of the opponents of the measure. His skillfully-framed interrogatories propounded to them exposed the fallacy in their argument which was thus resolved into a *reductio ad absurdum*. It was evident from the opposition, which appeared openly to the canal referendum measure and from the introduction of counter propositions in the Legislature, such as the concurrent resolution presented by Senator Henry S. Ambler, on January 23d, proposing an amendment to the Constitution by striking out section 8 of article 7, which is the section preventing the sale, lease or other disposal of the State canals,¹ and the bill introduced by Senator Merton E. Lewis, on February 19th, authorizing the Governor to appoint a commission to negotiate with and inquire whether the Government of the United States would undertake the construction of a deep waterway from Lake Erie to the Hudson river, and if so, upon what terms such work could be accomplished,² that the impending contest between the friends and foes of canal improvement was to be the most strenuous ever witnessed in the State.

In reply to the editorial of Hon. John I. Platt in the Poughkeepsie *Daily Eagle*, which urged upon members of the Legislature the passage of the Ambler resolution, I made the following answer:

"I cannot subscribe to the editorial in the *Daily Eagle* in relation to Senator Ambler's proposed amendment in favor of the abolition of Section 8 of Article 7 of the Constitution, and very few have ventured the suggestion that permission be given for the sale of the canal properties of the State. It is generally conceded that the canal system of the State has promoted its commercial interests to that extent which has very largely made it the greatest commercial state in the Union, and blind must be the man to history, who does not recognize the transcendent importance of the canal system to the commercial supremacy of the State. Therefore highly as I

1. N. Y. State Journal, 1903, p. 56.

2. *Ib.*, p. 223.

esteem the *Daily Eagle*, I am compelled to dissent from its position in this matter and to oppose the passage of the Ambler resolution and this I do in view of what the canals have achieved in promoting the commercial interests of the State of New York."

XXIV. A LONG FIGHT—THE WHOLE STATE AROUSED.

In order to prepare for this contest, meetings were held in various parts of the State to formulate resolutions and appoint committees to aid in the passage of the referendum measure. On February 19th, the New York Chamber of Commerce convened for the purpose of considering the subject. The meeting was attended by such well-known men as Hon. A. B. Hepburn, who was a member of the Legislature when tolls were removed from the canals, and by ex-Mayor Schieren, Morris K. Jesup, Stephen W. Cary, Gustav H. Schwab and William F. King. At this meeting resolutions were adopted favoring the pending legislation.

On February 20th, the new Canal Committee of the Merchants' Exchange of Buffalo convened and was presided over by Alfred Haines. This meeting was addressed by Theodore S. Fassett, Leonard Dodge, president of the Merchants' Exchange, Arthur W. Hickman, and others. The committee organized by electing Hon. George Clinton its permanent chairman; Theodore S. Fassett its vice-chairman, and George H. Raymond and Howard J. Smith its secretary and assistant secretary. This committee consisted of fifty men and included in its membership such well-known canal men as C. Lee Abel, W. H. Andrews, Leslie J. Bennett, Henry W. Brendel, Warren C. Browne, William E. Carroll, Frank L. Danforth, Henry Erb, T. S. Fassett, F. C. Ferguson, Gordon W. Hall, Alfred Haines, A. I. Holloway, Charles M. Helmer, L. M. Hewett, Arthur W. Hickman, Theo. Hofeller, Hon. John Laughlin, George W. Maltby, Hon. E. R. O'Malley, G. H. Raymond, John Roehrer, James M. Rozan, Edward C. Shafer, Howard J. Smith, L. Porter Smith, M. E. Taber, Frank Weaver and R. A. Eaton.

The standing canal committee, or the Committee on Canals and Harbors in 1903, consisted of the following well-

known canal advocates: J. J. H. Brown, W. E. Carroll, Marcus M. Drake, Edwin T. Evans, Harris Fosbinder, Robert R. Hefford, and George A. Ricker.

In addition to these gentlemen many other Buffalonians have served in an official and unofficial capacity in all canal controversies and have devoted much time and consideration to this and other transportation questions affecting the commercial development of Buffalo.

The annual reports of the Merchants' Exchange and latterly of the Chamber of Commerce of Buffalo, will show that a diversity of interests were represented on the standing committees of that organization who have had some part in the building up of the Queen City of the Lakes. The special committees designated to represent Buffalo at the canal hearings on the referendum measure fully realized the magnitude of the questions involved and the supreme importance to Buffalo's commercial future that those questions be solved favorably to its interests.

During the hearings on the bill and on February 9, 1903, Assemblyman James T. Rogers, chairman of the Ways and Means Committee of the Assembly, offered a resolution in the Assembly in substance calling upon the State Engineer and Surveyor to furnish that body detailed information in regard to the cost of the barge canal, including bridges, dams, damages to property, storage reservoirs, and increased cost of material and labor.¹ That resolution passed the Assembly on the following day. After a second hearing on the referendum measure, pending the information sought by the Rogers resolution, little could be done other than to perfect local organizations throughout the State and solidify canal sentiment preparatory to such action as might be found necessary on the incoming of the report of the State Engineer and Surveyor in relation to the increased cost of the barge canal project.

We have already seen what counter-propositions had been suggested to the barge canal measure and the desperate tactics resorted to by anti-canal forces within and without the Legislature.

1. N. Y. Assembly Journal, 1903, p. 217.

Canal advocates realized that it behooved them, in the language of Ben Jonson:

"For their own sakes to do things worthily."

It was broadly asserted by the *Binghamton Republican* that "It is a fact easily demonstrated that the canals do not control railroad freight rates and they cannot compete with the railroads." The *New York Sun*, the *Newburgh News*, and some of the Rochester papers shared in this view. The *Engineering News* called attention to the fact that in 1895 a commission was appointed by the United States Government, consisting of President James B. Angell of Michigan University, Lyman E. Cooley of Illinois, and John E. Russell of Massachusetts, to make an investigation of the project for a ship canal from the Great Lakes to the seaboard. It made its report in 1897, an appropriation was made to make surveys and the President appointed for that purpose Major Charles W. Raymond of the U. S. Engineers, Alfred Noble and George Y. Wisner. The surveys were completed in 1900. The route is described in the *Engineering News* as follows:

"This route, beginning at Buffalo, follows down the Niagara river to La Salle, 15 miles. Here the canal proper begins and continues for about ten miles to the Niagara escarpment, which is descended by a series of locks to the lower level of the Niagara river below the gorge. There are nine locks in all between the level of Lake Erie and that of Lake Ontario, the difference of elevation being 320 feet. Leaving the lowest lock of the series, a vessel would enter the lower Niagara river which is deep enough and wide enough for any ship afloat, and it follows down the river—which is really an arm of Lake Ontario—till it debouches into the lake six miles below. Thence the vessel proceeds through Lake Ontario to Oswego, distant about one hundred miles from the mouth of the Niagara river. From Oswego the route is up the valley of the Oswego river, partly in an excavated channel, to the village of Fulton, where it turns up the valley of a small creek and continues across sand ridges to Oneida lake. The total distance from Lake Ontario to Lake Oneida is about 26 miles. The vessel then passes through Lake Oneida, a distance of about 21 miles, and then enters the longest section of excavated canal encountered, that from Lake Oneida to the Mohawk

river at Herkimer, a distance of 43 miles. From Herkimer to near Rotterdam Junction, 55 miles, the Mohawk river is to be used, being converted by dams and locks into a system of slack water navigation. Over a large part of this distance the vessel will be in a channel of such depths and width that she can make as good time as on the open lake. At Rotterdam Junction the route leaves the Mohawk and passes through South Schenectady to the head of a small stream known as Norman's Kill. It follows the valley of this stream to the Hudson. Below this point about four million dollars will have to be spent on the Hudson river from the mouth of Norman's Kill to Hudson city to secure a 21-foot channel."¹

The Ontario route was the original route traversed by the Indian and early traders, and was recommended in the report by Albert Gallatin and by the Surveyor-general, on the survey of James Geddes, as early as 1808.² Ever since that time, it has been favored by some engineers and among them, in these later years, by George W. Rafter, member of the American Society of Civil Engineers, who preferred the Oneida-Mohawk route to the St. Lawrence-Champlain route,³ and by William Pierson Judson, member of the American Society of Civil Engineers and Deputy State Engineer, who prepared for the State Engineer and Surveyor a sketch of early projects, extending from the Great Lakes to tidewater.⁴ The Canal Commissioners in 1811, to avoid the diversion of our commerce to the St. Lawrence route and the building up of the commerce of Montreal to the loss of that of the port of New York, recommended the interior route for a canal to Lake Erie.⁵ The perils which canal craft were unable to withstand on storm-swept Lake Ontario, involving insurance problems, operated in favor of the interior route, which has been maintained ever since. In advocacy of the Ontario route Mr. Judson, in an official report made to the State Engineer and Surveyor, Hon. Edward A. Bond, said:

1. Quoted by *Rochester Post-Express*, Feb. 28, 1903.
2. See *supra*, pp. 68, 71.
3. See report of Committee on Canals for 1900, p. 448.
4. See Bond's Barge Canal Report of 1901, p. 968.
5. See 1 N. Y. Canals, 62-63.

"The south shore of Lake Ontario, in the distance of 110 miles between Olcott and Oswego, has several United States harbors, including the two first named, and with all these harbors the writer is familiar, having, as United States assistant engineer, made repeated surveys of all of them at various times between 1869 and 1897, while in charge of their works.

"In addition to these harbors, which are maintained by the General Government, there are three lighthouses on points which have no harbors. The safety of boats navigating this part of Lake Ontario is thus amply provided for, especially in view of the further fact that this portion of Lake Ontario off-shore is entirely free from shoals and islands; the open lake being 400 to 600 feet deep, and there being no shoals or islands in it, except a shoal at the mouth of the Niagara river, eighteen miles west of Olcott, and shoals and islands at the extreme easterly end of the lake, thirty to fifty miles beyond Oswego. . . .

"The creation of this canal route by way of Lake Ontario would in no way contribute to the Canadian commerce by way of the St. Lawrence, but would solely benefit the commerce of New York State by way of the Hudson river to New York. That it would not benefit Canadian commerce is evident when it is considered that the Canadians already have the Welland canal with two feet greater depth and with much larger locks than proposed, by which commerce now has full access to the St. Lawrence route.

"From a common point in Lake Erie, seventeen miles up the lake from Buffalo and opposite to the entrance to the Welland canal, the distance to be traversed to a common point in Lake Ontario opposite to Olcott is practically the same, being sixty-six statute miles by way of the Welland canal and sixty-three statute miles by way of the Niagara river and the proposed barge canal and Olcott. It has already been proven by actual experience that 240-ton boats, built to navigate the present Erie canal, can safely be towed on Lake Erie and can be used in traffic from the ports on Lake Erie to Buffalo. This fact being established, it is evident that boats for the proposed 1000-ton barge canal, being four times as large as the present Erie canal boats, can, with equal or greater safety, navigate Lake Ontario, which is more favorable for navigation than Lake Erie—Lake Erie being comparatively shallow, 40 to 90 feet in depth, and more quickly disturbed by storm, while Lake Ontario is 400 to 600 feet deep and less easily affected.

"With the numerous harbors which have been described there is no question that 1000-ton barge canal boats can be towed with safety during the canal season (April-November) through Lake Erie,

through Lake Ontario to Oswego, from which the greater part of the route to the Hudson river will lie through the open waters of the Oswego and Oneida rivers, Oneida lake and the Mohawk river. It is worthy of consideration that when it is undertaken to enlarge the Erie canal by way of Oneida lake and the Oneida and Seneca rivers to Buffalo, such enlargement will take many years as well as many millions; meantime by merely enlarging the Oswego canal and Oswego river for twenty miles from Three River Point down to Oswego, commerce can use this route and get into Lake Erie by way of the Welland canal many years before they will be able to use the other route through the center of the State."¹

This view, however, was not entertained by those familiar with navigation on Lake Ontario, nor justified by the experience of the navigation of small vessels on Lake Erie, where on account of the frequent storms they are unable to do any appreciable part of the carrying trade. Vessel-men have never advocated the Ontario route and it is improbable that they would invest any money in 1000-ton canal barges that were required to navigate Lake Ontario as part of the route from tide-water to Lake Erie.

Still the anti-canal papers made use of this argument of Mr. Judson and called particular attention to the fact that the survey for the ship canal from the Great Lakes to the East comprised 102 miles of an artificial canal and 98 miles of canalized rivers, while 277 miles of the distance was through open lakes and rivers. The depth of the ship canal was to be 21 feet, the width 200 feet except through canalized rivers and open lakes. The estimated cost of the ship canal was \$200,000,000 and it was asserted, evidently without fully understanding the delays incident to ship canal navigation, that vessels might pass from the Great Lakes to the Hudson river in less time than a barge could pass through the enlarged waterway. That assertion, however, is not justified by results of navigation of the Suez, the Manchester or the Kiel ship canals.

Wide publicity was given to this resuscitated ship canal scheme during the discussion of the barge canal project, al-

1. See annual report of State Engineer of New York for 1902, pp. 60-61, 63-66.

though the General Government had taken no action whatever since the survey was made in 1900 to further the project of a ship canal from the Great Lakes to tidewater, and this had to be met as were all other counter-propositions in the debates before the committees and on the floor of the Legislature.

Mr. Gustav H. Schwab and other gentlemen familiar with ship navigation addressed letters to the press of New York in opposition to this rival scheme and from a practical standpoint as manager of one of the largest trans-Atlantic steamship lines, pointed out the impracticability of the operation of a ship canal through this State. The un-wisdom of the proposition of the construction of a ship canal through the State, which would involve the transfer of the Erie canal to the General Government, was clearly pointed out by the Hon. Abram S. Hewitt at a meeting at the Chamber of Commerce of the City of New York, on March 24, 1898. His statement on that occasion has never been successfully answered. These various schemes and counter-propositions to the barge canal measure confronted canal advocates when the barge canal proposition came on for consideration in the Legislature.

The timely action of the Chamber of Commerce of the State of New York on this and other occasions was appreciated by the commercial interests of the State. In its annual reports may be found much information on the subject, prepared from time to time by the Hon. Samuel B. Ruggles. The Chamber of Commerce as early as 1784 favored the proposition to connect the Great Lakes with the Atlantic Ocean by canal, and had been a consistent supporter of every measure before the Legislature to increase the efficiency of the State's waterways from their inception under the direction of DeWitt Clinton. In its official management were such distinguished canal advocates as Morris K. Jessup, ex-Mayor Abram S. Hewitt, Governor and Vice-President Levi P. Morton, William E. Dodge, Charles S. Fairchild and ex-Mayor Seth Low, who took a broad, statesmanlike view of transportation problems in the State, and spoke on several occasions in advocacy of pursuing a

liberal policy in canal development and in the administration of the State's commercial affairs.

The third joint hearing on the Davis-Bostwick thousand-ton canal bill occurred at the capitol on February 24, 1903. At this hearing there appeared Prof. William H. Burr of Columbia University, who said:

"The plans and estimates which are now before you were reached through a study by a body of engineers whose operations were characterized, I believe, by a degree of thoroughness and technical preparation which has never been excelled in the consideration in any similar engineering question. Careful surveys were made. The board of consulting engineers and its staff not only made its own examinations through this State, but had before it a great mass of surveys and an examination of the most thorough kind made by the United States Deep Waterways Board, a large portion of whose work lay in this State along the line of the proposed waterway. . . . I believe that all the exigencies that might attend the work, at any rate, all the natural exigencies which might attend the work in this State, were carefully kept in view, even the increased cost of working in winter and the feasibility of flood damage. I have given this matter very careful consideration since the present session of the Legislature; and while there may be room for differences of opinion to some extent, I have been unable to conceive any substantial reason why the estimates made at that time will not hold at present."¹

Hon. Henry B. Hebert, president of the Canal Association of Greater New York, E. R. Coykendell of Rondout, I. N. Stebbins, president of the Orleans Fruit Growers' Association; W. H. Lewis, secretary of the Rome Coöperative Insurance Company; Hon. Gustav H. Schwab, William F. McConnell of the New York Board of Trade and Transportation; G. L. Blakesley, J. Kurtz, Jr., and George Welsh, representing the Albany Lumber Dealers; Hon. John Laughlin and George H. Raymond of the Merchants' Exchange of Buffalo, and G. Wilson Jones of the New York State Retail Lumber Dealers' Association, all appeared in favor of the referendum measure. Mr. Hebert spoke principally of railroad freight differentials against New York City; Mr. Coykendell favored the bill from the Hudson

1. Abstract in the *Buffalo Express*, Feb. 25, 1903.

river commerce viewpoint; Mr. Stebbins and Mr. Lewis urged the report of the measure from the farmers' standpoint.

At the suggestion of Mr. Schwab, Alfred Noble, president of the American Society of Civil Engineers, an engineer in charge of the Pennsylvania railroad tunnel, addressed a letter to Chairman George A. Davis, in which he said:

"At a meeting held on February 5, 1901, the Board of Advisory Engineers, of which I was a member, adopted the following resolution:

"*Resolved*, That in the opinion of this Board the work (surveys and plans) has been done thoroughly and in a manner which meets its approval and that the estimates and reports in which the results of these surveys and work have been embodied are entitled to the confidence of the people of the State of New York. I voted for this resolution and still believe that the work can be done for the estimated amount approved therein, if carried on under efficient management.'"¹

On March 2nd the State Engineer and Surveyor, the Hon. Edward A. Bond, transmitted to the Assembly an official communication setting forth his answer *seriatim* to the questions propounded to him in the Rogers resolution, stating the total cost for the barge canal project as above outlined on the basis of the State of New York having to furnish its full cost and based upon the present price of labor and material, at \$100,562,993. That included the additional cost of a barge canal from Waterford to Whitehall, which was estimated at \$7,485,133.² It will be observed that this total amount exceeded the estimates made in 1900 by about \$18,000,000. This latter sum comprises the additional amount necessary for the improvement of the Champlain as above stated and the further sum of about \$10,000,000 due to the increase in the price of labor and material since the original estimates were made.³

1. Buffalo Express, Feb. 25, 1903.

2. N. Y. Assembly Journal, 1903, pp. 592, 598-600.

3. *Ib.*

This report from the State Engineer increased the estimates several million dollars, which, added to the difficulties that beset the proposition. The bill as originally introduced provided for the enlarging of the Erie and Oswego canals to twelve feet in depth and the Champlain canal to seven feet in depth. That naturally aroused the opposition of the Champlain canal advocates, who contended that there was fully as much occasion for the enlargement of the Champlain canal as there was for the enlargement of the Oswego canal to the same dimensions as those prescribed for the Erie. Such well-known canal advocates as Assemblyman James M. Graeff of Essex county, Hon. Frank S. Witherbee of Port Henry, Hon. John F. O'Brien, Secretary of State; Hon. John R. Myers, Hon. Smith M. Weed and James Averill, Jr., of Clinton county, Henry G. Burleigh and William H. Cook of Whitehall, W. A. Norris of Fort Ann, and others, called attention to the history of the Champlain canal and the tonnage over it, and maintained that the industrial and commercial interests of the Champlain valley were dependent on cheap transportation to tidewater. The extensive iron ore deposits in Essex county, the paper mills at Glens Falls and elsewhere which received their supplies of pulp wood from Canada and the Champlain ports accustomed to receive their coal and merchandise from the Hudson river and vicinity, were dependent on cheap transportation afforded by the Champlain canal, which could not be successfully navigated after the enlargement of the Erie and Oswego canals except by canal boats of small capacity and unable to compete with thousand-ton barges. Hon. Frank S. Witherbee of Port Henry, who was a member of the Green Canal Commission of 1899 and united with his colleagues of the commission in recommending the barge canal improvement project, in a letter to State Engineer Bond said:

"If for six million dollars more the Champlain canal could be made a 12-foot canal, it seems to me to be a mistake not to include it in the Erie canal thousand-ton barge scheme, for such an increased deepening of the Champlain canal would materially help to enlarge the Erie canal in its tonnage. . . . If the Barge Canal bill

were amended so as to authorize the construction of a barge canal along the line of the Champlain canal as well as along the line of the Erie and Oswego canals, as proposed in the bill, the grand total for the canal improvement named, based upon the estimates made in 1900, would be about \$88,000,000."

Mr. Witherbee called attention to the fact that thousand-ton barges loaded with grain at Buffalo, for New York, on their return might pass through the Champlain canal to Lake Champlain and there load with iron ores and return through the Champlain and Erie canals to Buffalo to the Lackawanna Steel Company's furnaces; and predicted that there would be from a half to a million tons of ore thus annually transported from Lake Champlain to Buffalo if the Champlain were so improved.¹

The tonnage over the Champlain canal had ranged, during the last decade, from 800,000 to 1,000,000 tons annually, whereas the tonnage on the Oswego had ranged from 31,000 to 184,000 tons annually. This argument was presented by Assemblyman Graeff to Governor Odell and to members of the Legislature who were disposed to accede to the claims of the Champlain advocates. New York commercial bodies realized the force of the argument and the importance of connecting the Hudson river with Lake Champlain and thereby rendering the commerce of the latter tributary to the port of New York.

For three centuries the Champlain and Hudson river valleys had been the highway of trade and travel, and there was no reason assigned why the Champlain canal ought not to be improved to the same capacity as the dimensions of the Erie and Oswego, other than that of the expense involved. It was clearly demonstrated that the saving of 50 cents a ton on the freight passing through the Champlain canal would pay the interest on the State's investment of the additional sum necessary to make the improvement, and in time that saving would be equal to the principal.

A conference of canal interests was called to consider this with other questions. The Hon. Abel E. Blackmar of

1. *Buffalo Courier*, Feb. 24, 1903.

New York was designated to represent the New York commercial bodies and Hon. George Clinton of Buffalo to represent the up-State interests. These two gentlemen and myself went over all the matters in difference and reached the conclusion that the Champlain canal ought to be improved in the same manner as it was proposed to improve the Erie and Oswego canals. The bill was by us so amended as to accomplish that purpose and so as to provide the additional funds in accordance with the revised estimates of the State Engineer and Surveyor as hereinafter stated. That was the final form of the bill. As so amended, on March 10th it was submitted to a conference of canal advocates, attended by Senator George A. Davis, Assemblymen Charles F. Bostwick and James M. Graeff, Hon. Abel E. Blackmar and myself. Mr. Bostwick stated that "the bill is now in final shape and is satisfactory to all interests. We felt that the enlargement of the Champlain to a thousand-ton barge canal would not be objectionable to the administration." Senator Davis said that he believed that "the bill was now in the form in which it will pass." Accordingly as the canal bill was finally revised by Mr. Clinton, Mr. Blackmar and myself, it was framed to include the improvement of the Erie, Oswego and Champlain canals to the barge canal capacity and carried an appropriation of \$101,000,000. This conclusion was reached only after due deliberation, and it ensured united action on the part of all canal interests, including the several counties along the route of the Champlain canal. There was thus averted the opposition of Champlain canal interests similar to that manifested the year before by the Oswego people which was sufficient to defeat the passage of canal measures.

After the introduction of the canal referendum measure and during its consideration, Senator Merton E. Lewis of Rochester on February 19th, introduced a bill entitled, "An act to provide for the appointment of a commission to negotiate with and inquire whether the Government of the United States will undertake the construction of a deep waterway from Lake Erie to the Hudson river, and if so to ascertain upon what terms such work can be accomplished

and making an appropriation to provide for the expense of such commission."¹ That bill was referred to the Committee on Finance and reported from that committee on March 17th, with Senators Grady, Foley, McCabe and McClellan dissenting therefrom.²

On or about March 13, 1903, a meeting was held at the office of Andrew H. Green at 214 Broadway, New York City, attended by several prominent New York gentlemen, who adopted a resolution calling for an international convention including all the peoples of North America, for the purpose of a continental association to promote the construction of a continental system of deep waterways and a system of water powers for irrigation of arid and arable lands of the continent.

Among those asked to serve on this committee were Hon. Andrew H. Green, Frederick W. Seward, J. Edward Swanston, Paul Dana, William Hyatt Farrington, Du Mont Clark, J. Edward Simmons, Ludwig Nissen, Gardner D. Matthews, Henry Clews, John De Witt Warner, F. R. Olcott, Lyman J. Gage, Augustus D. Juilliard, Clarence W. Seamans, James S. Jarvie, A. P. Fitch, Charles S. Fairchild, George F. Seward, Charles T. Barney, Max Nathan, Henry Morgenthau, Robert C. Ogden, Louis Stern and Oscar Straus.

This committee by resolution endorsed the bill introduced by Senator Merton E. Lewis, which they assumed asked "Congress to complete surveys for a canal thirty feet deep between the Great Lakes and Atlantic tidewater"; and in presenting a memorial in support thereof Ethan Allen is reported in the *New York Tribune* of March 14, 1903, to have said:

"At the present time the cost of transportation in this country exceeds the cost of production. The charge for transporting the products of the Mississippi river to the Atlantic coast is so great as to check production and consumption and to limit the area in which production is profitable. More than half of the best steel steamships of the United States are imprisoned above Niagara Falls from De-

1. N. Y. Senate Journal, 1903, p. 223.

2. *Ib.*, p. 2523.

cember 15th until April 1st. With deep sea canals open from Lake Erie to tidal Hudson those vessels can pass from the lakes in December and engage in ocean service until the opening of navigation on the lakes. The earnings on the seacoast would enable them to reduce the charges of transportation on the lakes. Ten billions of dollars would construct a continental system of deep sea canals and create water power equal to fifty million horse-power or seven hundred million man power. By the conversion of this water power into electric power it could be used as a motive power for production or distribution. At the rate of \$23 a horse-power a year, fifty million horse-power would command a rental of one billion, one hundred and fifty million a year, or 11½ per cent. per year on the cost. On this basis the rental of water power would discharge the interest on the construction of the canals and water power and the cost of maintenance, and create a sinking fund for the discharge of the principal within fifty years. Competent authorities estimate the available water power on this continent to be equal to one hundred million horse-power. The system outlined would give to American vessels absolute control for all time to come of the foreign commerce of this continent without subsidies being granted to them, and therefore save the two hundred million for subsidies proposed in the Hanna-Fry bill."

This colossal continental canal scheme was given wide publicity and without due consideration was endorsed by some papers, including the *New York Mail and Express*. They also favored the Lewis bill.

The advocates of this measure had little hope of its final passage, but they thought they would be able to alienate some of the supporters of the referendum measure by proposing the alternative proposition of the construction by the Government of a ship canal from the Great Lakes to tide-water. That proposition had been repeatedly disapproved by those familiar with the scheme, and during the pendency of the Lewis bill its futility was again shown in a statement prepared by Hon. Frank S. Gardner, secretary of the Board of Trade and Transportation of New York, in which he said:

"No commission that has investigated the subject for the General Government or for this State has ever reported that a ship canal will be 'commercially successful.' Commissions have reported that canals

of certain depths *can be constructed* to float ships, and have estimated the cost of same at various sums up to \$600,000,000, but have never declared that a ship canal would be commercially successful.

"A vessel must be adapted to the waters upon which it sails in order to attain the best results in transportation. Hence a vessel adapted to ocean conditions is not the cheapest carrier on the lakes, because the ocean vessel costs much more to build than the lake vessel, and a vessel adapted to lake navigation and built to give the lowest rate of transport on the lakes is not adapted to ocean conditions, because it is not strong enough for safety on the ocean, and neither the ocean nor the lake vessel is adapted to give the cheapest transportation on a canal, because canal barges cost much less than either of the other types." . . .

"The great mistake made by advocates of ship canals is in assuming that a continuous trip will be made without transfer at New York from lake port to foreign port. This can not be done practically. It can be done as a possibility and has been done *via* St. Lawrence, but always at a loss. Therefore—

"1st. The commercial interests do not desire a deep waterway (meaning a ship canal).

"2nd. A ship canal is not needed because it could not carry as cheaply as a thousand-ton barge canal.

"3rd. A waterway to accommodate all ocean-going vessels is not desirable, because only the smallest of the ocean vessels, if they could go through a deep canal, could sail through the lake channels.

"4th. A waterway accommodating large lake vessels only would be of no advantage because the barges could drive them off the canal by carrying much more cheaply.

"5th. The 1,000 or 1,500 ton barge is preferable to either lake or ocean vessels on canals."

The Lewis bill came on for final passage in the Senate on March 25th, and was defeated, the affirmative vote being only 18 and the negative vote 27.¹

XXV. PASSAGE OF THE REFERENDUM MEASURE.

While the referendum measure was in process of perfection and revision for final passage, still another alternative proposition was presented, March 11th, to the joint meeting of the Senate and Assembly Canal Committees, by the In-

1. *Ib.*, p. 652.

ternational Towing and Power Company, which was endorsed by F. O. Blockwell, Chief Engineer of the General Electric Company, and by St. John Clark, the engineer of the Rapid Transit Commission of New York. This involved on the part of the State the construction of an elevated traction-way outside the tow-path, with one rail above the other, so that motor cars thereon propelled by electricity might pass and re-pass without interference with each other and without obstructing the tow-path for horses hauling canal-boats.

It was stated that the State might charge 50 cents per ton, and do the propelling of boats by that method at 29 cents per ton on the Erie and Champlain canals; and that such electric equipment would cost, approximately, \$7,500,000. This was known as the Hawley System, and John Murray Mitchell, the counsel for the company, stated that "One great advantage that this proposition has over all others, is that the State is certain that no railroad or transportation company would be able to buy or absorb the system or control its operation."

This proposition was not acted upon favorably by either committee, but illustrates another phase of sentiment ever fertile in suggesting expedients to circumvent the passage of the referendum measure.

Another strange proposition was that of former State Senator Charles A. Stadler, president of the American Malting Company, who proposed to take the canal off the hands of the State, agreeing to form a corporation to carry freight from Buffalo to New York in one-half—possibly one-third—the time required for canal boats, and at an expense positively not greater than that of the "present antiquated system." This was to be done by building an electric or steam railroad in the canal bed, which would transport freights from Buffalo to the Hudson river at Albany in twenty-four hours, and then in large boats to New York City. This proposition also was so visionary as not to receive serious consideration, for the average railroad rate per ton mile in 1900 was said by George H. Daniels of the New York Central Railroad to be 5 9-10 mills, and few, if

any, would admit that the facilities for the transportation of freight, over a railway built in the bed of the canal, would be superior to those of the New York Central system with its four tracks extending alongside the Erie canal nearly the whole distance from Buffalo to Albany, on which the modern type of locomotives is capable of hauling seventy-five loaded cars containing a thousand bushels of grain each. And still with the remarkable equipment the railroad rate in 1900 was said by Mr. Daniels to be 5.9-10 mills per ton per mile,¹ more than ten times the cost of freight predicted (52-100 of a mill per ton per mile) by Major Thomas W. Symons on the barge canal.²

On the same day that the Hawley scheme was under consideration, Assemblyman Charles S. Plank of St. Lawrence county, presented in the Assembly a concurrent resolution "proposing an amendment to section 9 of article 7 of the Constitution, relative to tolls for transportation on the canals,"³ which was designed to permit the reimposition of tolls on boats navigating the canals. This was favorably reported by the Judiciary Committee on April 3d⁴ and passed the Assembly on April 8th by 76 affirmative votes, a bare constitutional majority, with 50 votes against it. It was transmitted to the Senate, referred to the Judiciary Committee, but never reported therefrom.

The provisions of the Constitution then in force and for many years prior thereto, inhibited the submission of a bonding referendum measure to the electors to be voted on at the same time that proposed constitutional amendments were submitted.⁵ That provision, however, was eliminated from the Constitution in an amendment thereto which I introduced and which was passed in 1903 and again in 1905, and approved by popular vote at the election in the latter year.⁶

1. "Address of George H. Daniels before the Chamber of Commerce of Utica," 1900, pp. 8, 12.

2. See report of the Committee on Canals of New York, 1900, p. 3.

3. N. Y. Assembly Journal, 1903, p. 630.

4. *Id.*, p. 1711.

5. Sec. 4, article 7, N. Y. Constitution of 1894.

6. Sec. 4, article 7, N. Y. Constitution of 1906.

Prior to the latter amendment it required much attention in the Legislature to hold in check proposed amendments to the Constitution (and there were many and some very urgent ones presented annually), and to prevent their passage and submission at the same election at which it was desired to submit a canal bonding referendum measure as prescribed by the Constitution. That constitutional limitation was constantly confronting us during the legislative sessions of 1896 to 1905, and was wisely stricken from the Constitution.

The attitude of the press toward the Davis-Bostwick referendum measure was not assuring. The *New York Sun*, the *Poughkeepsie Daily Eagle*, the *Newburgh News*, some of the Albany and nearly all the Rochester papers, the *Elmira* and *Binghamton* papers, some of the *Utica* and *Syracuse* papers, and the rural press in the north and south tiers of counties, where railroad influence was most effective, were quite generally hostile to the referendum measure. Others were alarmed at the magnitude of the revised estimates of the State Engineer and Surveyor, who in concluding his report stated:

"It has been my earnest endeavor to be perfectly unbiased in analysing and revising the estimates as covered in this report; and I have taken this position realizing that mine is an executive department only established for carrying out the wishes of the people of the State as expressed by their chosen representatives, and in reaching these conclusions I have tried to be just to those who are advocating and believe in the barge-canal project, to those who are advocating and believe in what is known as the finishing of the nine-million work, and to those who believe that we should not spend more money in the enlargement of the canals, but simply maintain them in their present normal condition."¹

The last class of journals above indicated withheld support from the measure, although they did not openly oppose it. There were many others, including most of the metropolitan journals of New York, the *Troy Times*, which for many years under the aggressive supervision of the Hon.

1. N. Y. Assembly Journal, 1903, p. 600.

John M. Francis, had been a strong canal advocate; the Plattsburgh, Rome, Oswego, Dunkirk, Tonawanda, Lockport, Niagara Falls, and all the Buffalo and many other papers, ably supported the measure as finally revised, carrying one hundred and one millions of dollars. The Binghamton *Leader* went so far as to publish a specialized report from Albany, stating that "Slowly but surely the scheme for strangling the plan for improving the State system of waterways progresses." This and other dispiriting reports were given wide publicity from Montauk Point to Jamestown, from Binghamton to Ogdensburg, and formed a part of the hostile sentiment to the referendum measure that tended to defeat its passage through the Legislature.

The Buffalo *Evening News*, in its aggressive and able advocacy of canal improvement, and in its keen analysis and complete refutation of many of the arguments of opposing journals, rendered yeoman service in the cause of maintaining and upbuilding the commercial and industrial prestige of the State. The Buffalo *Express*, also, was a consistent advocate of canal improvement on a broad basis.

There was opposition to the barge canals for various reasons. Quite naturally, the localities affected by the proposed change in route protested, although it had not been determined then (nor has it since been determined) that the existing canals will be abandoned. Among those who had long enjoyed the advantages of canal transportation in the Mohawk valley, was Daniel Spraker, Jr., of Sprakers. He keenly appreciated what the loss would be to his village if canal facilities were taken away. He issued circulars to the Canal Advisory Commission and others, and stated the objections to canalizing the Mohawk river in the following fashion:

"As one of the recommendations of the Canal Advisory Commission is to canalize the Mohawk river (contingent on the survey to be made) from Rexford Flats as far west as Little Falls, a little light thrown upon this subject would seem to be appropriate just at this time.

"In my humble opinion the following results would follow the carrying out of such a scheme.

"1st. The present canal between those two sections would be abandoned with all its State rights of way; and all of the expensive masonry structures, such as locks, aqueducts, culverts, bridges and other State property would be rendered useless and of no value.

"2d. The canalizing of the Mohawk river and the abandonment of the present canal would be a great injury to the private interests of citizens and taxpayers who own property along the route of the present canal and have built thereon buildings for canal business purposes which they would not have done but for the canal, and for this reason this plan of canal improvement would be unpopular.

"3d. The canalizing of the Mohawk river would compel the State to purchase new rights of way, the payment of land damages and the building of new locks, bridges and other permanent structures. The above expenses would more than overbalance the lessening the number of locks and the consequent reduction of the cost of management as contemplated in the change from canal to river.

"4th. The Mohawk river is the natural drainage for the surplus water of the whole valley of the Mohawk; and for miles north and south on each side numerous creeks and rivers not far apart pour their floods into the Mohawk which is now carried down to the Hudson, and thence to the sea. Besides being a drainage for the water the Mohawk is a sluiceway for all the filth of the sewers of all the villages and cities along its banks. Therefore if this natural channel (the Mohawk river) is contracted or destroyed by making a canal of it the laws of nature would become perverted and the result would be (besides the destruction of State property) the overflowing of the valley by floods and the dissemination of disease caused by the collection of the filth of the sewers not being carried away by the river as now. This surplus water and filth of sewers cannot be disposed of by the river-canal as it would make too much of a current for the navigation of boats, as the water in the canal between locks must be kept on a level. As it is now the water in the canal is impure enough, but when you come to make a sluiceway of it for the whole valley (the river now being used for that purpose) the canal would be unendurable. The larger streams could be utilized as feeders to the improved canal on its present alignment which we believe is now the case in a large degree.

"5th. The canalizing of the Mohawk river would change and contract its present current and cause it to overflow the New York Central railroad and carry away their tracks, culverts and bridges. When the river breaks up in the spring and often also during the winter it overflows its banks and the ice rushes down with great

force which would greatly damage if not totally destroy all of the permanent structures of the canalized river.

"6th. According to the present law much of the abandoned canal property would revert to the owners of the original land and the State would derive no benefit therefrom, and it is a constitutional question whether the canal can be legally abandoned.

"7th. It would cost much more to canalize the Mohawk than to enlarge the present canal, and the cost of this matter will be an important factor in the submission of this question to the people.

"8th. The State owns land enough on each side of the canal to give it the proper width. If the boats are to be propelled by electricity hereafter the present towing path will then be unnecessary and it can then be cut away for canal purposes.

"9th. We do not wish to be misunderstood as being opposed to canal improvement. We are in favor of canal *improvement* and not of canal *abandonment*. We think canal improvement is necessary to preserve the commerce of the State, and is the only thing the people have to check the monopoly of the railroads. In trying to bring all of this about we must not forget that it must receive the sanction of the people at the polls. Therefore something tangible must be presented to them for their approval. We are afraid that the river-canal would prove too intangible to win their approval.

"10th. The idea of canalizing the historic Mohawk river sounds well and may be captivating to the minds of many, but when the matter is reasoned out in all its bearings and stripped of its romance it becomes an impracticability if not an impossibility.

"If romance is to count for anything (in this practical age) in preserving this beautiful river from the taint of pollution we would invoke the muses in its behalf and will therefore quote from the famous poet, Thomas Moore, who sailed up this river when he visited this country in its early history. The inspiration of the poet begins as follows:

" 'From rise of morn till set of sun
I've seen the mighty Mohawk run.' "

The foregoing is a fair illustration of the incidental objections that were raised from time to time to the change in route and other problems, involved in projecting and carrying forward the campaign for canal improvement. Mr. Spraker for many years had been actively identified with canal transportation, and he felt called upon to present objections which he considered conclusive to the canaliza-

tion of the Mohawk river. These objections, however, had been thoroughly canvassed by the Board of Advisory Engineers, and they assert that their method of canalizing that river will be productive of successful results. The French Government succeeded in canalizing the Rhone, which is as impetuous, if not as torrential as the Mohawk. The German Government had successfully rectified the course of the Rhine and made that navigable. The Egyptian Government is now dredging the upper reaches of the River Nile for commercial as well as irrigation purposes. The policy of New York State has not been fully determined with reference to its original canals after the barge canals are in operation. They may well be preserved to supply local demands for cheap transportation, and the 240-ton boats may still be used for that purpose as well as for navigating the barge canals.

During the period of the barge canal agitation, there were distributed at various railway stations in the State, circulars, pamphlets and other anti-canal propaganda of various kinds, including editorials and such addresses as those of George H. Daniels, general passenger agent of the New York Central & Hudson River Railroad Company, on the "Decline in Canal Traffic," "What the Railroads Have Accomplished" and "Railroads Supercede Canals." Such dissertations might regale the credulous passengers, as they were whirled over the Four Track System, and lull them into acquiescence in the abandonment or surrender of their canal properties (then estimated worth one hundred million dollars), to railroad corporations, as was done in Pennsylvania, where may now be seen railway tracks encroaching upon the banks and even occupying the prisms of abandoned canals of that State, to the entire exclusion of all canal traffic thereon. That was the method pursued by railroad corporations to stifle competition in freight rates in that commonwealth. Some New York corporations were charged with similar designs upon the canal system of the State and their activity in the dissemination of anti-canal literature and the hostility of their employees to the project afford some basis for the charges.

Public sentiment as indicated in the foregoing recital of public hearings on the referendum measure and by the introduction of several alternative propositions already mentioned and conflicting press dispatches and editorials, and the circulation of anti-canal propaganda, was far from being settled. Both political parties, however, had at their respective State conventions declared in their platforms for canal improvement, provided that it could be carried forward without a return to direct taxation. Governor Odell had clearly indicated his position in his campaign speeches and in his annual message to the Legislature. In a general way it may be said that Greater New York, Buffalo, and some of the cities and towns in other counties in touch with canal transportation, favored the passage of the referendum measure; while other parts of the State, including Albany, Troy, Syracuse and Rochester, were against it.

Notwithstanding the declarations in party platforms, a majority of the Republican leaders in both branches of the Legislature were opposed to its passage. In order to hold such members of the Legislature as were not fully advised as to the arguments made that led up to the canal referendum measure, it became necessary to present the facts and to state the reasons in the discussion of the subject in the Legislature. The opposition had left nothing undone to dissuade legislators from voting for it. It was characterized as a colossal scheme, wholly unwarranted in this age when canals were fast becoming a thing of the past; and it was declared that in the march of civilization waterways were giving way to railways, and a mule on the towpath was no longer a competitor of the colossal locomotive hauling from 50 to 75 loaded cars of 80,000 pounds capacity. Sarcasm, repartee and denunciation were freely indulged in by the press and in the debates on the measure. To the statement that it was a colossal undertaking, answer was made that this was an era of gigantic enterprises and this imperial State would be content with nothing less. It was not complimentary to the sagacity or enterprise of its people to propose anything less stupendous than the largest waterway demanded by its growing commerce.

In the densely populated countries of the Old World, where railways are largely a matter of public ownership, it had been found that they furnished inadequate transportation facilities to supply the demands of commerce, and a similar condition was confronting this country. An Italian commission had recommended the construction of a system of canals in northern Italy, at an estimated cost of from fourteen to twenty-two millions of dollars. Germany was expending annually upwards of three and one-half millions of dollars to extend its 2237 kilometers of canals and other waterways. Austria had decided to construct interior waterways during the next decade at an expenditure of upwards of sixty-five millions of dollars. The republic of France was carrying forward a system of vast internal waterway improvements, projected under the sagacious and aggressive statesmanship of M. de Freycinet, Minister of Public Works during the preceding twenty-five years, of upwards of two hundred million dollars. The Federal Government was negotiating for an Isthmian canal, the expense of which was predicted to range from two hundred to five hundred millions of dollars. The Chicago Drainage Canal District had expended forty-five millions of dollars in constructing the drainage canal, 29 miles long, with a depth of 22 feet, and a width from 110 to 200 feet on the bottom, and from 198 to 200 feet on the top. Canada, less populous and less wealthy than New York, was soon to make surveys for a ship canal from the Georgian Bay to the tidewaters of the St. Lawrence, to be constructed at an estimated expense of one hundred millions of dollars, and that waterway, if constructed, and other Canadian waterways, would constitute most formidable rival routes to the canals of this State. Some corporations were bonding their properties in many millions of dollars for terminal and other improvements, and New York City was spending fifty millions of dollars on its subways.

Notwithstanding all these undertakings, it was asserted that the people would hesitate to authorize an expenditure of any such sum of money as that authorized in the bill in constructing waterways from the Great Lakes on the west

and Champlain on the north to the Hudson, even though it be at the risk of a loss of the vast commerce passing to and fro between those inland lakes and tidewater. With an equalized property valuation then of \$5,754,400,382, and that rapidly increasing, was it possible that the people would refuse a bond issue of one hundred and one millions of dollars, which was but $1\frac{3}{4}$ per centum of such valuation with that percentage decreasing as such valuation increased? With the State practically out of debt, was not the proposed expenditure so small a percentage of its assessed valuation as to cause no anxiety other than that of readjusting its fiscal policy to the new conditions that would exist if the measure were approved? No one familiar with what had been theretofore accomplished in waterway construction doubted that the people were competent to undertake and able to carry to completion the improvement and that it would do much to reestablish the commercial and industrial supremacy of the State over the other states of the Union.

Notwithstanding, however, the consideration theretofore given the subject and the efforts put forth to make plain its provisions, there existed widespread distrust in some localities and open hostility in others as to the advisability of the passage of the referendum measure in its final form, and members of the Legislature were divided into two opposing factions. Friends of the measure expressed some apprehension lest a majority of the members be swayed by the powerful opposition that had developed in some communities and let pass the opportunity of voting favorably upon it and of sending it to the people for their plebiscite, so that, if by them approved, canal construction might go forward. It was asserted that favorable action on this proposition would tend to hold our commerce against Canadian as well as all other rival routes. Under existing conditions the State was fast losing that commerce. Neither its canal nor railway facilities were adequate to hold it. It was then plain to all who had given the matter due consideration, that notwithstanding the increasing railway facilities, as it has since been well stated by Capt. A. T. Mahan, "water transportation must continue to fill a very large place in the circulation of

merchandise which we call commerce,"¹ and that without this the cities of this State would not hold their commerce, but would eventually assume positions not unlike those of Pennsylvania after its canals were turned over to its railroad corporations or abandoned.

Notwithstanding all this, and although it had been stated by such well-known engineers as Sylvanus Howe Sweet, in his "Documentary Sketch of the New York State Canals" that, "it remained for a free State of the New World to create a new era in the history of internal improvements and to complete an enterprise which had contributed more to the advancement of commerce and civilization than any similar work recorded in history," it was apparent to all familiar with conditions at Albany that the contest on the canal bill was to be one of the fiercest ever witnessed in the Legislature. The bill was reported out of the Senate Canal Committee on March 12th, amended to conform to the revised estimates of the State Engineer and Surveyor, and ordered reprinted. The seven members of the Canal Committee in attendance on that occasion, who voted for its favorable report, were Senators George A. Davis and Samuel J. Ramsperger of Erie, Irving L'Hommedieu of Orleans county, Francis H. Gates of Madison county, John A. Hawkins and Walter C. Burton of Greater New York, and Spencer G. Prime of Essex county.

As already stated, the Lewis bill providing for the appointment of a commission to negotiate with the United States Government in relation to the construction of a deep waterway from Lake Erie to the Hudson, was reported on March 17th, although it had been voted upon favorably by that committee on the same day on which the Davis referendum measure had been voted on favorably. Senator Davis, the introducer of the measure, was insistent on securing a position on the calendar for the referendum bill in advance of the Lewis bill and was successful in accomplishing that result. The canal measure was advanced without debate to the order of the third reading on March 17th, the

1. "The Hague Conference," by Capt. A. T. Mahan, in the *National Review*; reprinted 254 *Littell's Living Age*, p. 9.

day the Lewis bill was reported by the Senate Finance Committee, with the understanding that the bill would be debated on the third reading, and such amendments offered thereto as might have been offered in the Committee of the Whole. Senator Davis also insisted upon the passage of the canal bill prior to the passage of the excise and mortgage tax bills then pending in the Legislature, exciting much comment and arousing deep-seated opposition on the part of the interests affected thereby.

The *Buffalo Evening News* of March 21, 1903, said:

"The position of Senator Henry W. Hill on questions involving any bills at Albany cannot be successfully assailed. He insists that the party pledge of last fall on the canal proposition be carried out before he will support the programme of the majority of his party associates in the Senate. He will not support the excise bill, and while he may support the mortgage tax bill he will not consent to any general legislation unless faith be kept with the people on the greatest question now pending in the State. . . . Senator Hill stood alone in his position at first. He is ably reinforced by Senator Davis, and together they control the order of precedence in voting on the bills."

It was impossible for the Republican majority to pass the excise or mortgage tax measures without the votes of the two Erie County Republican senators, and they insisted on the passage of the canal measure in advance of these other measures. The canal referendum measure was finally reached on the Senate calendar on Tuesday, March 24, 1903, at 11.45 o'clock. Senator Merton E. Lewis of Monroe moved that the bill be recommitted to the Committee on Canals, with instructions to that committee to report it forthwith, amended by striking out all after the enacting clause and inserting in lieu thereof his bill authorizing the appointment of a commission to negotiate with the United States for the construction of a deep waterway from Lake Erie to the Hudson river.¹ He spoke at length in support of the motion and took occasion to review the results under the nine million dollar referendum measure of 1895, which

1. N. Y. Senate Journal, 1903, p. 631.

he characterized as a deliberate and willful waste of money, and he strongly opposed the Davis-Bostwick referendum measure. He read resolutions purporting to have been signed by Andrew H. Green, A. Strauss, Henry Clews, Paul Dana, Hugh Kenny, John DeWitt Warner, F. C. Olcott, Niles M. O'Brien, C. C. Shayne, Bird S. Coler, George C. Clark, E. A. Bradley, and a hundred other distinguished New Yorkers, endorsing the purpose of his resolution.

The attitude of the signers of these resolutions was called in question in the debates, and telegrams were received from some of them stating that they signed under a misapprehension of the purport of the resolutions and that they were in favor of the barge canal referendum measure.

The speech of Senator Lewis on this occasion was an elaborate statement of his reasons for opposing the barge canal bill. He declared that in his opposition to that measure he was representing the sentiment of his constituency—in other words, the voters of Rochester and vicinity. He reviewed the history of the \$9,000,000 proposition, and denied that moneys appropriated for the canal enlargement, according to that plan, had been foolishly or extravagantly spent. "I stand here," he exclaimed, "to deny the charge. There was no deviation, there was no mismanagement and extravagance, except those deviations, mismanagements and extravagances which always accompany any large appropriation for the expenditures of any large sum of money for public work." Continuing, he said that it was well known at the time the \$9,000,000 proposition was submitted to the people, that it was totally inadequate to the needs of the situation. It was thought, he said, that additional sums would be voted to complete the work, but the work had never been completed, nor the capacity of the canal enlarged by the expenditure of the \$9,000,000. He continued:

"The history of canal legislation since the completion of the expenditure of the \$9,000,000 is a history known to all men of the State. The deception that was practiced upon the people of the State in 1895 and 1896 has aroused the people, and led them to a study of the question, has induced them to examine into the facts, and today,

Mr. President, I venture the opinion that not a majority of the voters of the State are in favor of the appropriation of any more money upon the canals, unless it may be a sum sufficient to complete, the \$9,000,000 proposition as originally contemplated. That is true of the city of Rochester, Mr. President, and it is true of the county of Monroe, which I am here to represent in part. My constituents, my immediate constituents, the people of my district, do not want the barge canal constructed. In taking that position I believe they have taken the correct and proper position, the one which the judgment of thinking men throughout the State concurs with."

Senator Lewis dwelt upon the attitude of certain newspapers which he held to represent public sentiment and which were strongly in favor of the completion of the \$9,000,000 undertaking. He also dwelt upon the arguments which had been put forward, especially by New York and Buffalo, in favor of different propositions for canal improvement at different times. He outlined at length the action that had been taken by the Federal Government in surveying routes for deep waterways to connect Lake Erie and the Hudson, and he quoted from a report of the Engineering Commission which had presented the subject to Congress to the effect "that it is probable that a down grade deep waterway of twenty-one feet depth could be constructed from Tonawanda to Utica." "No survey of such deep waterway," said Senator Lewis, "has been made. First, because the act of Congress under which that Commission was operating did not authorize such a survey and, second, as I am informed, because there were no funds available to meet the expenses of such a survey." He said further:

"In view of that situation and the suggestion of the commission it seems to me only the part of wisdom that before the State of New York enters upon the policy of constructing a twelve-foot barge canal, at an estimated expense of \$100,000,000 and upwards, all possible and practical means should be exhausted to induce the Federal Government to continue the work which was begun in 1897, and to ascertain definitely and finally whether or not a deep waterway could be created by the interior route that should be able to take care of the tremendous commerce of the great Northwest and that would be

likely to compete successfully with the proposed Georgian bay and Ottawa river canal, if that canal should finally be constructed.

"Now, Mr. President, it was with this thought that I prepared and introduced a resolution in this body which was referred to the canal committee and which is now safely locked in the desk of that committee, asking Congress to provide for a continuation of the survey of the canal from Utica through the interior route to Lake Erie. It was because I believe that before the people of this State should be asked to commit themselves definitely and finally to the proposition for a barge canal at a cost of over \$100,000,000, that all possible information should be secured before that action is taken."

Senator Lewis emphatically stated that his federal proposition was not sprung at this time for the purpose of sidetracking the barge canal proposition. "So long ago," he said, "as 1884, the deep waterway proposition was brought to the attention of the people of this State by that distinguished and lamented gentleman who died but recently and whose record in this State was one of which any man might well be proud. I refer to the Hon. Elnathan Sweet who so long ago as 1884 advocated the consideration of a deep waterway of at least 18 feet depth, with 100 feet width at bottom, and with locks 450 feet long and 60 feet wide." He referred to the estimates and reports on the subject which had been made by Major Symons, and quoted a joint resolution introduced in Congress by Senator Vilas, February 8, 1895, which called for a preliminary inquiry concerning deep waterways between the ocean and the Great Lakes, and providing commissioners therefor. The speaker sketched the history of subsequent proceedings under this joint resolution, and continued:

"Now the question has been asked, perhaps most of you have heard it, why the route from Buffalo through the Seneca river and Oneida lake has not been surveyed. The Deep Waterway Commission to which I have referred was acting in conjunction with the Canadian Government, which rendered it impossible for our commission to recommend an interior route. The choice of routes was necessarily confined to the route by the Great Lakes or the route through Canada from the Georgian bay to the Ottawa river. But in 1897 the sundry civil expense bill called for a survey by the board of engineers on deep waterways by routes between the Great Lakes and

the Atlantic tide-water, reported by the deep waterways commission to the Secretary of War. That is the very proposition the Secretary of War had directed Major Symons to survey. The only surveys which we have of this route which I have suggested, which I desire, and which my bill provides shall be made, the only surveys which have ever been made are these: Those made by the interior route from Buffalo to the Seneca river, 153 miles, by the State Engineer and Surveyor in response to the requirements of chapter 411 of the laws of 1900. That was the \$200,000 survey provided for by the appropriation bill of 1900, and while these surveys were capably made, it is stated, and without contradiction so far as I know, it is still true that they were made in too hurried a manner to be satisfactory as to the details."¹

In reply to Senator Lewis on that occasion I said in part:

"The presentation at this time of the substitute offered by Senator Lewis to the 1,000 ton barge canal bill, if adopted, would defeat the passage of the latter measure. I trust the Senators fully understand the importance of disposing of the question properly.

"There are two propositions which confront us, and they are briefly these: The first is the Davis-Bostwick Barge Canal bill now under consideration; and the second is the substitute bill now presented by Senator Lewis, authorizing the Governor to appoint a commission to negotiate for the construction of a deep waterway from the Great Lakes to tidewater. The latter proposition, however, could not be carried to completion without a surrender to the Federal Government of the canal properties of the State, estimated to be worth one hundred million dollars. If the substitute bill, offered by the Senator from the 43rd District, be passed, it will necessarily defeat the canal referendum measure.

"From the inception of the New York canal policy, no other question has received so much consideration from its broad-minded, public-spirited citizens, its legislators and its governors. It may, therefore, be assumed that whatever may be said in this debate will necessarily be a repetition of what has been said by those who have preceded us, because every argument and every conceivable suggestion as to the wisdom of this legislation have been presented by those who are laboring for the upbuilding and maintenance of the commercial supremacy of this State. I will not undertake to repeat

1. The foregoing abstract of and quotations from Senator Lewis' speech are from a report printed in the *Rochester Union and Advertiser*, April 2, 1903.

all of these. They are known and read of all men familiar with the development of the natural and artificial waterways of this State. However, there are some matters that deserve our attention.

"In answer to the statements of the Senator in relation to the insufficiency of the nine million dollar appropriation to complete the work contemplated at that time, it may be said that the data then obtainable are now generally conceded to have been insufficient to warrant the action of the Legislature in passing the referendum measure of 1895; and still the members of the Legislature at that time undoubtedly acted up to their best judgment on such data as were presented and it does not become us to cast aspersions upon the integrity of those who performed what they then believed to be their duty in voting in favor of the passage of that measure.

"There were many problems then unforeseen which arose during the progress of the nine million dollar improvement, such as the sliding in of the sloping walls, the appearance at places of quicksands in the bed of the canal, the pouring of waters through the bottom of the canal and the caving in of many of the structures as fast as the prism was deepened, as there was nothing to support these when the earth was removed in the process of the enlargement. All this necessitated new construction at a great increase of cost.

"Since the passage of the nine million referendum measure, the Legislature, to avoid a recurrence of similar results under the proposed barge canal plan of improvement, passed the Survey bill, which authorized the State Engineer and Surveyor to make surveys and estimates for barge canals between the Great Lakes on the west and Lake Champlain on the north and the Hudson river. That report, together with the supplemental reports recently made by the State Engineer is before us containing the data upon which the pending bill is based, which authorizes a bond issue of one hundred and one million of dollars for improving the canals from the Hudson river to Whitehall and to Buffalo and from the Three River point to Oswego. That plan of improvement should be passed by the Legislature and submitted to the people for their approval as authorized in the pending Davis bill. All amendments thereto should be voted down. This measure has received much consideration and it is not likely to be improved by amendments hastily offered, which have not received the consideration of the canal committees.

"The substitute measure offered by Senator Lewis and endorsed by Hon. Andrew H. Green and other gentlemen, can have no effect other than the delay or possibly the defeat of canal improvement in this State. For nearly one hundred years the State of New York has appealed to the Federal Government for aid, without avail, and

there is no probability of aid being rendered by the Federal Government at the present time.

"Before the construction of the Erie canal was undertaken a commission was appointed to confer with the Federal Government on the question of governmental aid in the construction of a federal waterway from the Great Lakes to the ocean. That appeal was made in 1808 and declined. Several appeals were made thereafter before the State began the construction of the Erie canal, and all these were without avail. Repeated appeals have been made since, with similar results, and it is not probable that Massachusetts, Pennsylvania, Maryland, Virginia, and other Atlantic states would consent to a federal appropriation which would build up the port of New York to the detriment of Boston, Philadelphia, Baltimore, Newport News or other Atlantic ports.

"Furthermore, the ship canal scheme is so impractical and visionary as not to deserve serious consideration. Any one familiar with the commerce of the Great Lakes, the high seas, and the canals, fully understands the impracticability of navigating these three bodies of water with the same type of vessels. The depth of the harbors and connecting rivers of the Great Lakes is fixed by the Government at twenty-two feet, and the vessels navigating these bodies of water have a draft of twenty feet. The vessels navigating the high seas have a draft of thirty to thirty-five feet. It is proposed that vessels navigating the barge canals have a draft of ten and one-half feet. Vessels on the Great Lakes are not built to withstand the storms of the high seas, and ocean-going vessels are built so strongly that their carrying capacity is reduced below that of lake vessels in proportion to their displacement, and if they were to navigate the Great Lakes they could not successfully compete with lake vessels in the commerce of those lakes.

"The relative cost of ocean-going in comparison with that of lake vessels is such as to render it commercially unprofitable for ocean-going vessels to engage in inland lake navigation. Furthermore ships require plenty of sea room and the channels of New York harbor are hardly spacious enough to admit of ocean-going vessels, passing through without the aid of tug boats to prevent grounding. A similar condition obtains when large lake vessels attempt to pass through the Buffalo river, where tug-boats are necessary afore and aft to prevent them going against wharves or colliding with other vessels, notwithstanding that river is as wide and deep as a ship canal.

"Therefore the physical difficulties, incident to the navigation of restricted channels by ships, are such as to deter masters from the use of canals, except where controlling circumstances necessitate

their use, such as the Suez connecting the Mediterranean and Red seas to avoid the circumnavigation of Africa; the Corinthian canal connecting two arms of the Mediterranean sea; the Kiel, connecting the North and Baltic seas; the Manchester canal, affording ocean shipping facilities for the city of Manchester; and in the lower reaches of some rivers that form arms of the sea. In a 21-foot canal of upwards of 200 miles in length the rate of speed with large lake vessels would be slower than in the ship canals above mentioned, and the delays would be much greater. The speed of vessels drawing twenty-three feet is limited in the Suez canal to five and three-quarter miles per hour; in the Amsterdam canal, to five and six-tenth miles per hour; in the Kiel canal to six and two-tenth miles per hour, and in the Manchester ship canal to six miles per hour, but in none of these does the speed ordinarily exceed five miles per hour when in motion, and there are frequent delays of several hours.

"Vessel owners avoid such artificial waterways whenever possible, for delays are very costly, both on account of the capital invested and in operating expenses, and soon wipe out all the profits on a cargo.

"In the report of the Roosevelt or Green commission, they say:

"It seems to us that there are certain insuperable difficulties in the way of such a canal (either a twenty-one or twenty-eight foot waterway from the Great Lakes to the Atlantic ocean as proposed by the Board of Engineers on Deep Waterways) ever being a success, no matter by whom constructed. It is intended to be used by a vessel which can navigate the ocean, the canal and the lakes. We do not believe that such a vessel can be constructed so as to be economically and commercially successful. The ocean steamer is built to withstand the fierce storms of the Atlantic, and in its most modern type costs about \$71 per net ton of carrying capacity. The vessel to navigate the lakes is built to withstand less frequent and dangerous storms. It has less draught on account of the smaller depth of the harbors on the lakes, and it is built much less substantially; its cost is about \$36 per net ton of carrying capacity. The cost of a canal boat is about \$7.31 per ton of carrying capacity. . . . We do not believe that it is possible to combine these three types into one vessel which will be as economical for the through trip as to use the three existing types with two changes of cargo, one at Buffalo and one at New York, or to use the boat of 1,000 tons capacity going through from the lakes to New York and there transferring its cargo to the ocean steamer.

"This report contains abundant information upon which to base the conclusions reached by the commissioners who recommend the

improvement of the canal system to that extent which would admit vessels of 1,000 tons carrying capacity.'

"The Green Commission was called upon to decide, among other things, whether the canals should be improved or abandoned, and if in the judgment of the commission, they were to be improved, they were requested to make recommendations as to the character and extent of the improvement. The commission spent several months in giving hearings and acquiring expert information on the various engineering, transportation and other questions involved in a proper disposition of the subject, and one of their number inspected several systems of European canals where much information was acquired and presented to the commission. Two members of the commission were distinguished engineers of the Corps of the United States Engineers, and one of the number assisted in making the deep water survey through this State for the Federal Government. They finally reached a unanimous decision that the canals of the State should be improved to a capacity capacious enough to admit of their navigation by vessels carrying cargoes of a thousand tons each, in order to hold the commerce of the State against Canadian canals or domestic or foreign railway competition.

"From a most exhaustive study of all the questions involved of waterway transportation in this and foreign countries, the commission concluded that the thousand ton barge was the best adapted vessel for inland navigation, and that it was large enough to be an effective freight regulator for a century at least. The commission concluded that freight rates on such a canal would be fifty-two hundredths of a mill per ton per mile, while the present canal rate is one and seventy-six hundredths of a mill per ton per mile on boats carrying 240 tons and the railroad rate as stated by Mr. Daniels is five and ninety-hundredths of a mill per ton per mile. Thus it will be seen that the rate on the barge canal will be so low that no railroad rate can ever reach it. In the history of transportation in this and other countries, freight rates have never reached that low limit. What does that mean? It means, as the commissioners have said, that New York will always have the means of carrying freight between the Hudson river and the Great Lakes at a rate so low, that no combination of trunk line traffic managers can ever reach it, and it will give New York the advantage over every other State in the Union in the handling of freight passing to and fro between the Great Lakes and the Atlantic. That advantage hitherto has given her the commerce, the wealth and the prestige of an empire. With the marvelous development and extraordinary equipment of modern railways, they are competent to handle freight in such quantities and

with such rapidity as to outstrip the antiquated methods of our canal system, which has not undergone improvement in a third of a century. That condition must be remedied, if New York is to maintain her commercial supremacy.

"Both political parties are on record in favor of canal improvement. The pending measure is the culmination of years of study and consideration given to the subject by the people of the State. The commercial interests of the State are more or less dependent on the passage of the measure, and the canal improvement in the State. In refutation of the petitions presented here in opposition to the measure, petitions signed by thousands of other people might easily be procured in its advocacy, if that were necessary, but no one who has kept abreast of the movement since 1900 can be in doubt as to the trend of popular sentiment in this State on this measure. Public sentiment has been overwhelmingly in favor of canal improvement in this State. Every referendum measure presented to the people has met with approval, and no one doubts but that the pending measure, if submitted, will receive a large popular majority. The metropolitan press as well as the papers of the city, which I have the honor to represent, are unanimous in its support; and voicing public sentiment as they do, no one can be in doubt as to the wisdom of submitting to the people of the State a measure upon which they are permitted to express their will. This is a democratic proposition upon which everyone can express his individual opinion, and I am a little curious to see what Senator in this chamber will refuse by his vote to submit a measure of this magnitude to the judgment of his constituents. We hear eulogies pronounced upon the constitution of Switzerland; but will those who have heretofore lauded that system of government deny to their constituents the advantages which they laud so highly in that Republic?

"The people are demanding waterway improvement in order that the State may continue to maintain its lead in commerce, in wealth and in all the characteristics of a great empire, for cheap transportation is the basis of industrial as well as agricultural development and prosperity. The Lewis amendment should, therefore, be voted down and the Davis bill pass without amendment and be submitted to the people of this State for their approval at the next general election."

Senator George A. Davis, speaking in defence of the canal enlargement bill, said:

"It is often asked, Why is Buffalo so interested in canal improvement? The general idea being that it is the grain traffic that

we are seeking to have come to Buffalo that we may get a handling charge out of it. Nothing could be farther from the truth, or from the real reason why Buffalo especially demands the thousand ton barge canal. It is true that for many years Buffalo enjoyed a very large and profitable business in transferring grain from lake craft to canal boats. Those days have now practically gone by. A still brighter future is open to Buffalo and the Niagara frontier from the thousand ton barge canal. The highest profit ever paid to Buffalo men for transferring grain amounted to less than 50 cents per ton. The volume was very large and the earnings of course were large. Railroad competition at other ports and a practical destruction of the canal boats have caused the grain traffic by canal to sink to low figures. Not over one bushel in ten of the grain coming to our port moves out by canal, and for some years the highest rate for transfer was 35 cents per ton, and for the past three years no charge has been made. So our Buffalo elevators have made no money from canal transfer of grain for three years.

"Fortunately for Buffalo, it has now been conceded that no place along the entire chain of lakes presents such ideal features for cheap manufacturing of iron and steel as are found on the Niagara frontier, providing the thousand ton barge canal is built to give a cheap water outlet to the sea and to the entire canal section of the State.

"We can there assemble the raw material by water to a very large extent and with the big canal completed it is not out of bounds to say that we can at Buffalo, with the thousand ton barge canal, deliver a ton of iron and steel at tidewater for a lower price than it can be done from any point on this continent and perhaps in the world.

"What this means is this. We can take a ton of raw material, costing about five dollars per ton at our docks, and manufacture it into everything requiring iron and steel, and bring it up to a product worth from \$15 to \$50 per ton. A very large part of this difference is made up by labor used in the manufacture.

"Therefore, instead of the old grain traffic paying us never over 50 cents per ton, we propose to foster an industry that will pay to our people from \$5 to \$20 per ton to be expended in labor.

"This means an enormous increase in population along the Niagara frontier. The Stony Point iron and steel plant will expend close to \$40,000,000 and will alone support a population of close to 50,000 people within five years.

"This is the prosperity we are looking for from the thousand ton barge canal, and we will surely have it.

"We propose making Buffalo the greatest manufacturing center

on the lakes. At the same time we will be able to furnish all kinds of iron and steel material to all local points through the State and to New York City at prices that cannot be equalled anywhere in the country. This will culminate manufacturing all along the canal section of the State, and will in a few years make the canal section of New York State, and the river section as well, the greatest manufacturing sections in the world.

"Buffalo has practically forgotten the grain traffic in view of the bright future opening up in other lines, in other interests, which have been attracted to us by the idea that the thousand ton barge canal would be built. The value of the big canal to all local traffic is too well known to make it necessary to go into any figures.

"We have now come to a peculiar phase of the canal question. The leading commercial and business interests of the State, as well as the greatest engineers of the country, have decided that the best and cheapest way to move a ton of freight is in the thousand ton barge canal. The decision is arrived at after eight years of careful investigation. We are now met with the most remarkable schemes to solve this problem, submitted by men who have suddenly concluded that every one is wrong but themselves as to what should be done!

"Some of these schemes are launched by men who imagine they know, but do not know; and other schemes are launched by the most bitter opponents of canal improvement, for the sole purpose of delaying action on the canal question. None of these plans will hold water or check the thousand ton barge canal plan a moment, but they should be noticed. One is a matter of electrical towing. What the future may bring forth, no one knows, but it is perfectly safe to say that today the man does not live who can give any accurate estimate of the cost of the electrical towing of boats from Buffalo to Albany as proposed.

"The weakness of the proposed electrical towing plant is: First, that it is a patented device; and that which solves the problem once and for all, as far as the present is concerned, is that after making a great spread of argument to show that they would be willing to tow a boat from Buffalo to Albany for 50 cents per ton for power alone, it transpires that at the present time canal boats are being towed by those men who own steam canal boats at 50 cents per ton from Buffalo to New York, or 150 miles farther, for the same money.

"If therefore, the electrical towing is based on that proposition, it may be dropped at once from serious consideration, as it has already been by all who know anything about water transportation.

"The next proposition is, the great ship canal scheme to be built by the Federal Government. The anti-canal forces have sought to make a last rally on the ship canal plan. After fighting every canal improvement, they have finally suddenly evolved this brilliant scheme, and after visiting a number of men, prominent, but uninformed on the transportation question in this State, have induced them to sign a petition, as all petitions are signed, without really thinking or knowing what they were doing, requesting that the State of New York ask that indefinite entity, the United States, on what terms it would build a canal through this State.

"This effort is for the sole purpose of delaying the present bill. Hundreds of thousands of dollars have been expended for ship canal surveys between the lakes and tidewater through this State, and not a single effort has been made to carry the project through except on the part of those who wish to kill the present bill.

"The weakness of this last effort to block canal legislation is so evident that it is hardly worth considering; but this should be borne in mind by the honest people who have been induced to sign a ship canal petition. Every railroad running to the coast would be forced to stand against a ship canal through the State of New York.

"New York State would practically stand alone against the railroads and the friends of every Atlantic coast port from Galveston to Portland. It would be simply ridiculous to start such a movement; and, with the greatest success, it could not be built before twenty-five or fifty years.

"This is not all there is to it. A ship canal built from Buffalo to New York would never be used by a ship because it has been demonstrated beyond a doubt that the big nine thousand ton lake vessels cannot successfully, from a financial standpoint, navigate a narrow waterway like a ship canal for any considerable distance. The cheap thousand ton barge would alone be used, even if the ship canal were built.

"It is thus clear that the ship canal talk is only for delay, and is not a practical or sensible solution of the problem, and could not be obtained from the Federal Government even if it were practicable.

"The thousand ton barge canal solves the problem for all time, and the State of New York is big enough, rich enough, and smart enough to know it, and is able to build it and will certainly do so."

The obstacles interposed to the passage of the measure were such as to call for the utmost skill on the part of its friends to avert them. Direct and insidious attacks by way of proposed amendments were made upon it. Fortunately,

the Hon. Thomas F. Grady, the most skilled parliamentarian then in the Senate, was on the alert to repel every move made to check the progress of the measure. He was in the Legislature from 1877 to 1889, and had been in the Senate continuously from 1896 to the time under notice. He was then leader of the minority, and exerted a powerful influence upon his Democratic colleagues in the Senate. During the debates, which continued five and a half hours, he received a special message from Charles F. Murphy, the leader of Tammany Hall, which read as follows:

"My dear Senator: I desire to again remind you of the vital importance of doing everything in your power towards the passage of the canal bill, framed by the Canal Association of Greater New York. Aside from other considerations that should induce our support of this measure, is the fact that among the many distinguished citizens of our city who are agitating its passage, are many good and valued friends of the organization."

Senator Grady was already earnest in his support of the measure, but the impartation of this information to the other legislative members of Tammany Hall had a most salutary effect upon their attitude toward the measure. Senator Grady made a strong and brilliant speech on that occasion, in which he appealed to his colleagues to stand by the political declarations of the Democratic party, and severely arraigned some Republicans for their recreancy to their party platform. He spoke at great length, and on each of the several amendments proposed to the bill during the day; and had several lively tilts with those Republican senators who were exerting all their influence to defeat the passage of the measure. In speaking of the amendment offered by Senator Lewis, Senator Grady said:

"I can say for myself and colleagues that we want to vote the amendment down. It has got to be decided some day, we want to decide it now, so that whatever the enemies of the canals may do in the future, at least this old skeleton will not come up again. We will be glad to show whether either of the great parties dares to break faith with the people by seeking to turn the State canals over to the Government."

In reply to a statement that the Republican platform did not specifically declare for the thousand ton barge canal improvement, Senator Grady said:

"You can say that the Republican platform was a fraud, and that your constituency was betrayed, but you must remember that the people will never again give you an opportunity to betray them again on this subject. The people did not give the Democratic party the responsibility, but the obligation remained, and the Democrats elected to the Legislature would redeem their pledges and vote for the building up and improvement of the canals, justifying whatever confidence the people had in the Democracy, and hoping that the future would prove that the Democrats were right in assuming this position. With the Democrats a promise made before election must be fulfilled. A man who would break a political promise would break a business obligation. The State calls on both parties to redeem their promises and pledges publicly made. If this bill fails we shall have witnessed the basest betrayal of public confidence in the history of the Commonwealth."

Senator Grady severely scored Andrew H. Green for favoring the Lewis bill, and attributed his attitude on that measure to his railroad affiliations. He read a telegram from Bird S. Coler, received during the debate, addressed to George E. Green, stating that he had no recollection of signing the petition, and no intention of reversing his position on canals.

No parliamentarian ever exhibited greater tact during the entire day, or more materially aided in the passage of a great measure than did Senator Grady on that occasion. His steadfastness and fidelity to all canal measures—and there have been many, in support of which he has successfully led a solid Democratic minority—entitle him to the lasting gratitude and grateful remembrance of all the people interested in the commercial development of the State.

Senator George R. Malby of St. Lawrence county, offered an amendment, striking out that provision of the Davis-Bostwick bill which calls for the levying of a direct tax on real and personal property, in order to have sufficient revenue to pay interest on the indebtedness. He contended that that should be left to future legislative bodies.

To this I replied that the Constitution then provided for the imposition of a direct tax for meeting the canal debt; and added that I had introduced a proposed amendment at the Legislative session of 1902, adding a new section to Article VII. of the Constitution, authorizing the Legislature to set apart the surplus moneys of the treasury into a sinking fund to pay the interest as it falls due, and to pay and discharge the principal of any debt theretofore or thereafter created; and in the event that such moneys so set apart in any fiscal year be sufficient to provide such sinking fund, a direct annual tax for such year need not be imposed and collected, as required by the provisions of Section 4 of Article VII, or of any later law enacted in pursuance thereof. I pointed out that, if finally approved, this would enable the Legislature to suspend the imposition of a direct tax as required by Section 4 of Article VII of the Constitution, and permit the application of the surplus moneys in the Treasury to the liquidation of the State debts, including the bonded indebtedness contemplated in the pending measure. That proposed amendment, which passed the Senate of 1902 by the affirmative vote of 45 Senators, and without opposition, I held was likely to pass the present Legislature, and be submitted at a later date. That amendment passed the Senate April 21, 1903.¹⁰

Senator Malby stated that if the Hill proposition to relieve the people were submitted next fall, the Davis canal improvement proposition could not then be submitted. There was no possibility of getting both propositions before the people. I replied that the canal improvement measure as it would be submitted must contain a tax clause under the Constitution as it then existed, and that in the following year a proposed amendment to the Constitution might be submitted. Thereupon Senator Malby withdrew his amendment to the canal measure. In speaking further on the measure Senator Malby said that "he was willing to support any measure that would be conducive to the general pros-

10. N. Y. Senate Journal, 1903, p. 1389. On motion of Assemblyman Robert L. Cox, of Erie County, it passed the Assembly April 22, 1903. See Assembly Journal, 1903, p. 2817.

Senator George E. Green, who was a member of the Roosevelt Commission, which had recommended the thousand ton barge canal improvement, declared that "the Republican party and Governor Odell had pledged themselves to canal improvement, and every Republican who voted

against the bill was recreant to his trust. It was weak and false to pretend that the Republican party and its representatives were not pledged to canal enlargement, and the indirect taxation necessary to build the canal was all but provided for."

Senator J. P. Allds declared that "the party was pledged to canal improvement, but by indirect taxation, and this could not be accomplished until the Constitution was amended."

During the debate on this measure the Senate galleries were thronged, and an intense interest prevailed. Those of us in charge of the measure were keenly apprehensive lest there be some wavering in the ranks of its supporters, or through some other parliamentary attack of its opponents, that it fail of passage. The bill was an evolution of canal sentiment working through a quarter of a century, which finally culminated in this most gigantic measure ever submitted to a legislative body in any State of the Union. It involved many questions of engineering, of economics and finance, as well as questions of constitutional law. All these or some of these we were called upon to defend during the long session while the bill was under consideration in the Senate. It was one of the most strenuous sessions ever witnessed in the Legislature.

On the final roll-call, after all adverse amendments had been voted down, the canal referendum measure received the affirmative votes of 32 Senators, and there were 14 votes against the measure on its final passage.¹

On the final passage of the canal bill through the Senate, the senators representing the cities of Rochester, Albany and Troy were recorded in the negative and the Senator from Syracuse was absent on account of prolonged ill-health. The affirmative votes for the measure were by senators representing Long Island, Greater New York, some of the Hudson river counties, Saratoga and the Champlain valley counties, some of the Mohawk river counties, Madison and Oswego, Broome, Orleans and Niagara counties, and the three senators representing Erie county.

1. Senate Journal, 1903, p. 634.

The senators who voted for the bill were: Edwin Bailey, Jr., Edgar T. Brackett, Walter C. Burton, Thomas C. Cullen, George A. Davis, Peter A. Dooling, Victor J. Dowling, Nathaniel A. Elsberg, John C. Fitzgerald, Samuel J. Foley, Francis H. Gates, Louis F. Goodsall, Thomas F. Grady, George E. Green, John A. Hawkins, Henry W. Hill, Luke A. Keenan, Irving L'Hommedieu, Henry Marshall, Bernard F. Martin, James H. McCabe, Patrick H. McCarren, Chas. P. McClellan, George W. Plunkitt, Spencer G. Prime, Samuel J. Ramsperger, Daniel J. Riordan, John W. Russell, William Townsend, Joseph Wagner, Spencer K. Warnick and Thomas C. Whitlock.¹

If the commerce of New York continues to expand for another century in consequence of the barge canal improvement, as it has during the past century as a result of the construction of the original Erie canal, the names of these senators and the assemblymen who voted for the referendum measure of 1903, will be held in as high regard by succeeding generations as are the names of the original projectors of the canal system of this State.

In some respects the contest in the Senate was one of the most dramatic ever witnessed. It was the culmination of a movement starting with the abolition of tolls in 1882, and then for the enlargement of locks and deepening of the prism; thereafter for the improvement known as the Seymour-Adams plan; and finally the projection of the barge canal proposition. Such a movement extending over a period of two decades very naturally aroused deep interest, and its issue was fraught with extraordinary consequences to the commerce of the State.

Parliamentary contests usually involve matters that are largely temporal in character, which may be modified from year to year; but this project was fraught with momentous consequences to the State in that if it passed the Legislature and were approved by the people, it authorized a bond issue of one hundred and one millions, running over a period of eighteen years, which under a constitutional amendment

1. *Id.*

then pending was likely to be extended over a period of fifty years. It so far transcended in importance all ordinary parliamentary contests that it called forth the best efforts of all who had any part in it, either in or out of the Legislature.

During the long and strenuous debate the friends of the measure were intense in their advocacy of it and were called upon to defend its engineering, its fiscal and constitutional provisions, all of which were assailed by the opponents, who were equally resolute in their attacks upon it. It was the largest measure ever submitted to or considered by a legislative body in this country, and naturally aroused the deepest interest.

The pro-canal press of the State was jubilant over the passage of the canal measure and spoke in complimentary terms of Senators Davis, Hill, Grady and Green, upon whom largely rested the burden of carrying the measure through the Senate. Much credit is also due to the other senators who, although less conspicuous in the debates, by their votes made it possible for the canal bill to pass the Senate by a large majority vote.

After the canal bill had passed the Senate, it was transmitted to the Assembly on March 25th, and a motion was made to advance it to the order of second reading; whereupon several amendments were offered by Assemblymen George M. Palmer, Edwin A. Merritt, John T. Dooling, John Pallace, Jr., William V. Cooke, Daniel W. Moran, Olin T. Nye, George H. Whitney, Charles S. Plank and Samuel Fowler. It was evident that the bill had encountered very fierce opposition in that body. Assemblyman John McKeown of Brooklyn immediately moved a call of the House, which was had. Assemblyman Palmer moved that the bill with the amendments be made a special order on second and third reading for Tuesday, March 31st, and that motion was determined in the negative. Thereupon Assemblymen Jean L. Burnett and Fred W. Hammond moved further amendments to the bill and after some discussion of the motion of Assemblyman Fowler, the bill, together with all amendments, was made a special order on second and

third reading, for Thursday, March 26th, immediately after reading the journal.

On the day named, when the canal bill was reached on the calendar, Assemblyman Palmer spoke in favor of his amendments; and after a discussion by other members of Assembly, including Assemblyman Charles F. Bostwick, of New York, the introducer of the measure, Assemblyman Robert Lynn Cox of Erie, James T. Rogers of Broome, and others, all of the Palmer amendments were voted down, as were also all other amendments to the measure that had been proposed. The opposition, however, of Assemblymen Palmer, Moran and Pallace was continued down to the final vote on the measure.

Several Republican members who had offered amendments to the bill withdrew them during the discussion, and before the final vote Assemblyman Palmer reintroduced the same amendments and insisted on a roll call on each amendment so reintroduced by him. The roll calls occupied two hours of the time of the Assembly and all of his amendments were voted down.

Assemblyman Rogers, the leader of the Assembly, in withdrawing his amendment, stated that he considered that the canal advocates were entitled to have the referendum measure submitted to the people in the form in which they had framed it, and advised all Republicans to vote down the various amendments that had been proposed. Other assemblymen took a similar position; and after a discussion running through the entire day, far into the evening, the bill passed the Assembly by 87 affirmative votes to 55 votes against it.

The bill had been reached at 11.30 o'clock in the morning. Thirty-six amendments were offered to it altogether in the Assembly and most of them were debated until 6 p. m., when voting began on the amendments and continued for two hours.

Assemblyman Cox made a strong speech on the bill, as did Assemblymen Charles W. Hinson and Anthony F. Burke, all of Erie county. The burden of the debate, however, fell upon Assemblyman Charles F. Bostwick of New

York, the introducer of the measure, who had given the bill much study during the legislative session.

At the conclusion of the vote in the Assembly, George H. Raymond of the Merchants' Exchange of Buffalo, remarked: "Today has witnessed the culmination of eight years of labor on the part of the business interests of the State to secure for all time to our people the enjoyment of a free waterway between the Great Lakes and the sea. . . . We are now to undertake the greatest public work ever proposed in this country and the results will be beyond the wildest dreams of its friends."

On April 7th, at 11.35 a. m., Governor Odell gave his official approval to the canal referendum measure in the presence of Senator George A. Davis and myself, and Messrs. G. K. Clark, Jr., John D. Trenor of the Greater New York Canal Association, and S. C. Mead, secretary of the Merchants' Association of New York; and it became chapter 147 of the laws of 1903 of New York.

In this connection, in justice to the Merchants' Association of New York, it may be said that that organization, comprising such well known canal advocates as Clarence Whitman, Gustav H. Schwab, James C. Eames, William A. Marble, George L. Duvall, George F. Crane, William F. King, J. Hampden Dougherty, Thos. H. Downing, George Frederick Victor, Herbert L. Satterlee, Henry R. Towne, Frank B. Squier, John G. Carlisle, S. C. Mead, and others, had rendered important service to the canal campaign as early as 1898, in defeating the Pavey resolution. It continued thereafter to coöperate with other organizations in various parts of the State in the dissemination of pro-canal literature, and was one of the leading organizations that had a part in the Canal Enlargement Association of Greater New York. It was eminently proper that its distinguished and courteous secretary was invited to be present by Governor Odell on the occasion of the approval of the referendum measure.

XXVI. THE CANAL CAMPAIGN OF 1903.

As soon as it was known that the canal referendum bill had passed the Senate and Assembly and received the approval of Governor Odell, amendments were made to the proposed constitutional amendments as to the time of their submission to the people to be voted upon; and to avoid the complications of a presidential election in 1904, they were amended so as to be submitted to the voters at the general election in the fall of 1905, and passed the Legislature in that form.

The opponents of the canal measure in the Legislature were reluctant to submit to the majority vote of the two chambers and permit the canal referendum bill to go to the people without a protest on their part. Accordingly they organized and decided to issue a declaration against the canal referendum bill, setting forth their objections to the approval of that measure by the people of the State, apparently oblivious of the fact that the matter, under the Constitution, was then merely a referendum for popular approval or disapproval. Labor organizations all over the State, realizing the industrial development to follow cheap transportation over the improved waterways, declared in favor of the measure and did much to counteract the anti-canal sentiment in the interior counties of the State. These organizations were assisted later in the campaign by Mr. Warren C. Browne.

On May 9, 1903, the Merchants' Exchange of Buffalo gave a dinner to General Francis V. Greene, Thomas W. Symons, John N. Scatcherd and Edward A. Bond, members of the commission that recommended the barge canal improvement, and to the legislators of Erie county who had borne the burden of the fight in carrying the bill through the Legislature. The banquet was attended by a large number of prominent Buffalonians and distinguished citizens.

Herbert P. Bissell, whose father, Amos A. Bissell of Oneida county, was for years identified with canal transpor-

tation and operated a large fleet of canal boats, and who himself had served on important canal committees, acted as toastmaster. There were present such well-known men as Leonard Dodge, president of the Merchants' Exchange; John G. Wickser, George Clinton, Edward R. O'Malley, Edward H. Butler, Senators George A. Davis and Henry W. Hill; E. A. Bailey, J. A. Hawkins, Theodore S. Fassett, Ottomar Reinecke, Robert Lynn Cox, who had borne a conspicuous part in the debates of the Assembly; Charles W. Hinson, Charles V. Lynch, ex-Senator John Laughlin, Assemblyman John A. Bradley, William J. Conners, J. Howard Mason, W. Caryl Ely, George H. Raymond, Norman E. Mack, Charles F. Kingsley, Col. C. A. Bingham, Hugh Kennedy, W. C. Harrower, and many others.

Mr. Leonard Dodge, president of the Merchants' Exchange, in his opening address, said:

"Gentlemen and Friends of Canal Enlargement—We are assembled this evening to commemorate the glorious achievement in securing legislation authorizing the adequate improvement of the waterways of the State of New York, which, when ratified by the people of the State at the coming election, will become effective. To the chief executive and press of the senate and assembly, who steadfastly supported this legislation, we extend our heartiest thanks and rejoice with them upon the attainment of the victory in giving to the people of this State the opportunity of exercising their sentiment on so vital a project. It is exceedingly appropriate, too, that the celebration of this event should take place within our city. On October 26, 1825, upon the completion of the original Erie canal, a representative gathering of citizens of this city escorted De Witt Clinton and other invited guests through our public thoroughfares to a beautiful packet built of Lake Erie red cedar, known as the Seneca Chief, lying in the Erie canal at Commercial street, where De Witt Clinton and other invited guests, together with the representatives of Buffalo, boarded the Seneca Chief and departed upon their glorious passage through the State of New York, carrying a barrel of water from Lake Erie to be emptied into the waters of New York Bay, thereby wedding the Atlantic ocean with the great inland lakes. The Erie canal and waterways connecting therewith, have in past years created a chain of cities and towns of wealth and opulence not to be found in any other State of the Union. The maintenance of these waterways has given to the State of New York advantages of

transportation unsurpassed in any other State and gave to it the title the Empire State. . . .

"The opposition to canal improvement, I believe, is due in a large measure to a lack of knowledge of the subject. If our friends who have labored so zealously in the past continue to exert every effort during the coming months, an overwhelming majority will be found in favor of enlarging our canals, which is simply an expression for the continuance of the supremacy of this State in commerce, manufacture and agriculture. To you, gentlemen, who are members of our Legislature and occupying offices of authority, I beg to express again our heartiest appreciation and esteem for the noble manner in which we receive your support and coöperation."

General Francis V. Greene spoke as follows:

"Those who believe in the commercial supremacy of the State of New York and desire to see it continued, may well congratulate themselves that after so many years of earnest and determined effort and in the face of so many difficulties, the opportunity is now offered to the voters of the State to decide whether an adequate waterway shall be maintained across the State from the lakes to the ocean. . . . There is every reason to believe that the people will vote in favor of the proposition now to be submitted to them, providing it is properly presented for their consideration. On the other hand it will be vigorously opposed in certain quarters, and to counteract this an active campaign in its favor must be carried on. . . . The estimated cost of the project as determined by the engineers' committee, of which I had the honor to be chairman in 1899, was sixty-two millions of dollars. Certain changes were made in the plans by the State Engineer and the Advisory Board of 1900, by which the dimensions of the canal were increased and the Oswego canal with 12 feet of depth was included in the estimate, and the total cost brought up to eighty-two millions. The increase in the cost of labor and materials during the last two years led to a revision of the engineer's estimates during the past winter, by which they were increased more than ten millions for labor and materials and to provide for unforeseen contingencies, and by more than nine millions additional for the 12-foot depth on the Champlain canal, and for certain improvements at the Hudson river terminus, thus bringing the total cost up to one hundred and one millions, raised by the issue of bonds in a bill which will come before the people for their decision in November next. . . .

"It only needs cheap transportation to build up within our borders the greatest highway of trade between the Western States and Eu-

rope and to make this State the most favored spot in all the world for assembling the raw materials and converting them into manufactured products. This cheap transportation can be furnished by the enlargement of the Erie canal."

A letter was read from Andrew Carnegie, in which he said:

"Believe me, gentlemen, New York State has only to provide a waterway capable of taking one-thousand ton barges through to meet successfully the threatened triumph of Pennsylvania over her in population. You know that New York State as a State, excluding Greater New York, has been losing population steadily as compared with Pennsylvania. So it will continue to do and it is only a question of a few decades when Pennsylvania will be again the Empire State as she once was. The only means that I know of that will retard this and perhaps prevent it is to obtain for New York State what neither Pennsylvania nor any other State can by any possibility acquire, a deep and wide waterway from lake to ocean."

Speeches were also made by Messrs. Henry W. Hill, George A. Davis, George Clinton, W. Cary Ely, John N. Scatterd and John A. Hawkins.

This dinner was an auspicious opening of the canal campaign in this State, which continued for six months, and grew in interest as it proceeded. The arguments presented in the speeches on that occasion were widely circulated and largely followed during the entire campaign. Buffalo had thus set the pace for other meetings held under the auspices of various chambers of commerce and commercial bodies throughout the State. An organized and active campaign followed under the direction of the Canal Enlargement Association. Speakers were in demand and went into many counties of the State and succeeded in engaging the attention and in convincing a majority of the electors that the referendum measure merited their approval. The direct method of statement adopted by the speakers, together with the overwhelming array of facts forcefully presented, turned the tide from an anti-canal to a pro-canal vote. Some of the speeches were prepared with great care and represented long study of the matters under consideration. These addresses are now of historic

interest and present certain phases of the questions involved not to be found elsewhere. Much of the literature bearing on that campaign was necessarily of a fugitive character and has largely disappeared. There is no doubt but that the speeches, carefully prepared articles and editorials, that appeared from day to day in the press, did much to formulate public sentiment on the important questions involved in the referendum measure. The magnitude of the problems presented and the far-reaching effects upon the future development of the State elicited the best efforts of many of its citizens and these are worthy of permanent record in the annals of the commonwealth.

The project was carried, as will later appear, by an overwhelming vote, but the causes operating to produce the result are traceable to the influences exerted for more than a century by the enterprising and far-seeing citizens of the State, whose successors were then and have ever been sufficient in numbers and devoted to its best interests to carry forward its great public improvements and to uphold and maintain the dignity of this imperial commonwealth. The efforts of some of those taking part in the campaign, which was of wide range and vast proportions, are included in this historical review. That campaign was unprecedented and was possible only in a State having similar constitutional provisions, to those of this State, such as California and Washington. Its historical significance justifies an extended review of its salient features.

The campaign, as already stated, began in Buffalo. Other cities and towns followed with canal meetings. At a banquet given by the Tonawanda Board of Trade and attended by 150 business men, the late Theodore S. Fassett of Buffalo delivered the principal address, in the course of which he said:

"With the enlarged Erie canal and the Black Rock ship canal a fact and in operation, most of us will live to see a vast city extending from Stony Point to Niagara Falls, because the manufacturers of iron, steel and other bulky commodities will sooner or later be compelled to move from Pittsburg, or wherever else they may be, and locate on the Niagara frontier to get competitive advantages of the

new facilities created. Access to Niagara river by the largest vessels on the lakes, unlimited water frontage, Niagara power, and, more important than any other one of these advantages, the ability to distribute their products by the big canal through the State and to New York at a lower rate of freight than has ever been known for like service that is what will win; and when it is remembered that New York State is the only Atlantic State that can tap the Great Lakes by canal and the ocean because of the prohibitive topography of the other states, it would seem that every intelligent citizen of Buffalo and the Tonawandas would take off his coat and work with every ability that God has given him from now until the polls close on election day to see that every voter not only understands the importance of this question, but gets to the polls and casts his vote for the canal referendum bill."

Few men in the State were more zealous or more effective in their advocacy of canal improvement than Mr. Fassett, whose death preceded the completion of the great undertaking to which he had devoted portions of the best years of his life. He spared no time nor effort in the cause, and he possessed energy, ability and a familiarity with the subject, which enabled him to convince those with whom he came in contact of the wisdom of the measure. Much is due to the efforts of that patriotic, noble-minded, warm-hearted, public-spirited citizen.

In his memorial address at Clymer, in Chautauqua county, Benjamin S. Dean of Jamestown said: "As certainly as January follows December, the Erie canal enlarged and equipped for the discharge of new work has an important mission yet to fill in the destiny of the State."

As early as the month of May, an aggressive policy was determined upon by canal advocates in Western New York. George Clinton, John N. Scatterd, George H. Raymond, Robert R. Hefford, L. Porter Smith, John Laughlin, Alfred Haines, Theodore S. Fassett, Howard J. Smith, Marcus M. Drake, Leonard Dodge, Herbert P. Bissell, George Urban, Jr., John Cunneen, James J. H. Brown of Buffalo; Frank S. Oakes of Cattaraugus, Willis H. Tennant of Mayville, and Benjamin S. Dean of Jamestown, were the leaders in the movement.

U O P N

At a meeting held in Buffalo on May 11th, the writer spoke of the growth of Buffalo from an Indian village to the sixth largest commercial port in the world in less than a hundred years, and sought to enlist local interest by calling attention to the possibilities of its future growth with a waterway extending from the Great Lakes to the Hudson, capacious enough to admit barges carrying a thousand or more tons of freight, and outlined the policy which had been adopted by the canal advocates of western New York to make an efficient campaign on the referendum measure in order that the people might fully understand its provisions and be prepared to ratify it at the coming election.

On or about May 25, 1903, a long circular was issued in opposition to the approval of the referendum measure by sixteen of the State senators, some of whom opposed the final passage of the measure in the Senate. It contained, among other things, the following statement:

"While much of the State's earlier prosperity is doubtless attributable to the canals, their history for many years reveals a record of inconsiderable importance in the vast commercial development of the times. While it can be readily appreciated what important a factor a tonnage of 1,635,089 tons on the Erie canal was in 1850 to the city of New York with a population of 650,000 people, and to the city of Buffalo with a population of 40,000, when the modern railroad was unknown, it can as easily be seen how small a factor in their commercial life, with their population increased six fold, was the tonnage of 2,105,876 tons in 1902, it being less than two-thirds of the tonnage of the canal in 1872 (3,562,560 tons). The latter growth of these cities has not been dependent upon and has not been checked by the decadence of the canal. If the policy of the State requires the expenditure of the State's moneys for the purpose of creating facilities for transporting freight in competition with the existing railroads, why should it not be better for the State to construct a four track railroad from Buffalo to Albany along the present route of the Erie canal? Competent engineers have asserted, and the statement has never been contradicted, that such a railroad could be constructed for a much smaller sum than it is proposed to expend in the construction of the barge canal. It is also unquestionably true that the annual charge for maintenance of such a railroad would be smaller than the probable charge for canal maintenance. As the

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United States has for many years had the greatest commercial development of any country, and New York State the greatest commercial development of any State, it would be well for us to pause before attempting to improve conditions acknowledged to be the best in the world at a cost so heavy that it may seriously handicap the general welfare. There is the highest degree of probability that the estimates are too low; that great engineering works not included in the plan will be rendered necessary by unexpected contingencies in connection with supplying the canal with water, and in confining the water within its banks; that there will be large and unexpected damages to private interests which the State must pay. If carried through, the enterprise is sure to injure the laboring population now employed to the utmost and to bring either under the law or in spite of the law tens of thousands of foreign laborers of the lowest type, who will remain when the work is done a drag on our own civilization and a menace to our native workers. In many sections of the State, the canals are now drawing from our lakes and streams a supply of water sorely needed for manufacturing and municipal uses. If enlarged according to the proposed plans, the supply for the canals must be indefinitely increased at the immediate and direct loss not only to individuals, but to counties, cities and towns, whose growth and development may be retarded if not destroyed.

"The State is now defraying the expenses of government without a direct tax levy. If this proposition is adopted, that policy may as well be openly abandoned, and whether abandoned or not the great expenditures incident to building the canal will indefinitely postpone the realization of the beneficent policy of the State regardless of party in building good roads and completing the acquisition of the State's forest parks, adequately providing for the State's charities and improving our educational system. Why should New York State expend one hundred and one million dollars in a doubtful experiment, to bring the products of the farms and factories and forests of the great Northwest to the seaboard for a dime less per ton than they are now transported? Such a public improvement should be undertaken, if at all, by the Federal Government, at national and not State expense. If undertaken, it should never be a thousand-ton barge canal, which cannot carry vessels fit for either the Great Lakes or the sea, but a ship canal from Lake Ontario to the Hudson river."

This summary of the arguments used on the part of the opposition, however, had often been refuted and contained little that was justified by the facts, as they were disclosed

in the history of canal development in this State. It was well known that several European nations owned a large part of their railways, and notwithstanding that, they had found it advantageous and commercially profitable to construct waterways through their respective territories for the handling of freight, which could be transported very much cheaper over governmental canals than over governmental railways. The argument in favor of the construction and operation of a State railway is answered by the experience in such foreign countries and it is against the traditions and the policy of this State to own and operate railroads.

Further answer was made to the arguments advanced in this circular by several speakers. It is interesting, however, as an evidence of the arguments presented by those who carried their opposition from legislative halls into the fora of the people, as did also some of the pro-canal senators.

A formal reply to the circular was made on June 10, 1903, by Messrs. George Clinton, Henry B. Hebert, E. L. Boas, Gustav H. Schwab, Frank Brainard, John W. Fisher, R. R. Hefford, Frank S. Witherbee and Frederick O. Clark, the State committee for canal improvement. In this reply, among other things, is the following:

"The conclusion arrived at by the committees of the State of New York is in line with the views announced by the committee of interstate commerce of the United States Senate in 1885, as follows: 'The evidence before the committee agrees with the experience of all the nations in recognizing water routes as the most efficient cheapeners and regulators of railroad charges. Their influence is not confined within the limits of territory immediately accessible to water transportation, but extends further and controls railroad rates at such remote interior points as have competing lines reaching means of transportation by water. . . . With an enlarged Erie canal, barges could go to interior parts of New England without transshipment of cargo, and on the other hand we should have the mighty barges in which we could bring from New York City to our works on the lake the ores which must be imported from South Africa and the Caucasus, the saving over rail transportation to Philadelphia and Baltimore, would be so great that the western part of New York on the lakes would eventually become one of the prin-

cial cities of manufacture. Nothing can prevent this if suitable waterways between Buffalo and the ocean be kept open. We intend to manufacture pig iron on Lake Erie to supply Rochester, Utica, Syracuse, Troy, and, of course, New York and the eastern parts, so that the foundries of these cities would have cheaper pig iron than ever before."

In June George H. Raymond of Buffalo was made secretary of the Canal Improvement State Committee, and placed in charge of the bureau for the dissemination of canal literature, prepared in part by him and by others in the campaign on that measure.

Early in the same month, George Clinton made a formal address in the city of Tonawanda, in the course of which he said:

"Here we come to consider the great benefit to be derived from the improvement of the canal which will bring commerce to our State; it will cause to flow through this State the commerce of the West and the East in the proportion to which we are entitled by our natural advantages; it will build factories throughout the State, not only on the line of the canal, but north and south of it. But above all—and this is the economic value of this great undertaking—it will absolutely put in the hands of the State the power to prevent—in fact, it will itself prevent private corporations from controlling transportation and dictating where commerce shall go and where factories shall be built; what places shall grow and prosper and what shall not; and what individuals shall live in prosperity and who shall not. Without a controlling power the railroads can do all this; in other words, it will prevent private corporations from usurping the powers of the people. . . . Think of it a moment. At their dictation Tonawanda would live or die. I do not mean that it would absolutely pass out of existence, but it would probably pass into a condition which may be fitly characterized by that famous term 'innocuous desuetude.' So with Buffalo, so with New York, and so with every city on the line of the canal, and so with every place in this State. . . .

"Do you know what they [the railroads] have done? . . . They have said that the advantages which we possess in this State, which Nature has given us, interfere with the proper division of traffic between the railroads, and they have made in their freight rates what they call 'differentials' between the port of New York and the ports of the South, between New York and Boston, even; New York and

Baltimore, New York and Philadelphia, New York and Newport News. What has been the result? Having wiped out the advantages of the situation, conditions which we have, the result inevitably has followed that the commerce of the port of New York, while not actually decreasing, has decreased so far as the proportion in total commerce is concerned, and that at the other ports has grown. . . . This means the decadence, not merely of a great port, but a blow at the prosperity of the entire State. The Inter-state Commerce Commission, of the United States have said that this matter of differentials was a thing they could not interfere with under the Inter-state Commerce law, but that the State of New York has an ample remedy springing from the advantages which Nature has given her and that that remedy was the proper improvement of her canals."

During this time the New York *Sun* conducted a campaign against the canal referendum measure and in its daily issues presented facts and statements not only prejudicial but in some instances misleading, with the evident purpose of prejudicing the minds of the voters against the measure. In one of its issues appears this statement:

"With the money which the Davis law proposes to sink in the Erie canal the State could build a four-track railroad on the banks of the canal and equip it in the most modern fashion and carry free of all charges to any one every pound of freight that comes to the port of Buffalo. With the canal as a roadbed and no right of way to secure from Buffalo to Albany, the road could be constructed and equipped for less than twenty million dollars. . . . If the transportation question were one of reason rather than tradition, of business rather than reckless extravagance, these contrasts of figures might appeal to the sane minds of the voters."

The figures, however, presented were themselves compiled by anti-canal workers, said to be largely under railroad domination, and would not bear analysis or close scrutiny.

The *Journal of Commerce* and several other metropolitan organs maintained throughout the campaign a considerate but friendly attitude and discussed the matter in a broad and statesmanlike manner. Neither politics, nor partisanship, nor railroad domination affected these latter journals in their discussion of the broad policy, which the State ought to pursue towards its avenues of transportation.

The agitation for the measure was no less vigorous than that of the opposition. In the campaign of 1895 thirty-three counties cast a majority vote against the nine million dollar referendum measure, and the opponents of the barge canal law looked to these anti-canal counties to cast a heavy vote against it. Appeals were made to their prejudices and their alleged interests, not to burden themselves with such an expense as would be entailed upon them if the bond issue were approved, with little or no prospect of any benefits to the localities of these anti-canal counties. Rural papers, railroad and corporate influences of various kinds were vociferous in denunciation of the measure, and during the summer the opposition was so strong that the canal advocates organized a Canal Enlargement Committee, of which the Hon. George Clinton of Buffalo was chairman. Henry B. Hebert, chairman of the Canal Association of Greater New York, E. L. Boas, Gustav H. Schwab, Frank Brainard, John W. Fisher, R. R. Hefford, Frank S. Witherbee and Frederick O. Clarke were members, with power to prepare and publish such statements as they considered wise in advocacy of the measure.

An important canal meeting was held in Lockport, on July 9th, presided over by Willard T. Ransom, which was addressed by F. Howard Mason, secretary of the Chamber of Commerce of Buffalo, and others.

The friends and foes of the measure realized that the issue was one largely dependent on an intelligent understanding of its provisions and purposes by the million and a quarter of electors who were to vote upon it at the coming election. The proposed amendments submitted by the Constitutional Convention of 1867 had largely failed of popular approval from a lack of understanding of their provisions, and it was possible that the barge canal measure with its several provisions, such as those relating to engineering, finance, change of route, adequate water supply, and the enormous expenditure authorized to complete the work, and to maintain it after it was completed, might fail for a similar reason. Furthermore, there were many who were not ready to admit that water transportation was more economical

than railway transportation, upon which latter means of transportation many communities were entirely dependent, and could not see how they were to be benefited by the proposed canal improvement. They looked upon these matters with as much aversion as did the Roman, who, in the language of Macaulay, would

"Leave to the Greek his marble nymphs
And scrolls of wordy lore."

Not only was there the general apathy throughout the State, but there was also the active hostility of the railroads and railroad interests to the measure.. Those who took a broader view of the question of cheap transportation as an indispensable requisite for the industrial development of the State, appreciated the conditions obtaining and the dangers that beset the canal referendum measure. It is not possible to give a detailed account of all the meetings held or efforts put forth to inform the people and convince them of the necessity of voting right on the referendum measure, nor is it possible to enumerate all that was done in opposition to the measure. Both sides presented such arguments as they thought were most likely to produce the results they desired, but the campaign was essentially an educational one. Its importance was such as to absorb public attention in many localities, as may be seen from the record that follows of some of the meetings that were held, and of the efforts put forth by citizens of various counties for and against the measure.

At the Republican county convention, held in Wyoming county on July 27, 1903, Mr. W. H. Roeper presented an anti-canal resolution, in opposition to the referendum measure, in which it was stated that "it will be a sacrifice of the interests of the rest of the State in behalf of the interests of the few" if such a bond issue were authorized, and that "we do urge upon all Republicans in the county to do their utmost to accomplish the defeat of this pernicious measure"; and he made some remarks in support of the resolution which came as an entire surprise to the majority

of the members of the convention. At the conclusion of Mr. Roeper's remarks, the Hon. Greenleaf S. Van Gorder, State Senator from 1890 to 1893 inclusive, took the floor in opposition to the adoption of the resolution, and in a spirited address appealed to the members of the convention not to approach the consideration of such a subject in a pessimistic way, but in a broad and enlightened way, and asked them to overlook the fact that they were residents of the county of Wyoming merely, but to remember the fact that they were residents of the great State of New York, the Empire State of the Union. Senator Frederick C. Stevens replied to Mr. Van Gorder, and spoke in favor of the adoption of the resolution. After Mr. Van Gorder's reply, the Hon. John N. Davidson took up the discussion in behalf of the resolution, which was adopted, but only after the most spirited discussion that had been had in a convention on that county for years. The entire press of the county, with the exception of the Wyoming county *Gazette*, published at Pike, and the Silver Springs *Signal*, published at Silver Springs, opposed the approval of the referendum measure; but the vote in Wyoming county, notwithstanding the strong anti-canal sentiment, was 865 votes for the measure to 3,593 votes against it, which was as favorable a showing as could be expected in a county wholly out of touch with canal transportation and interests. Senator Van Gorder and other friends of the referendum measure in that county accomplished as much for the measure as did those where the opportunities were far more favorable, and the vote much larger. The showing in Wyoming county was quite as favorable as the returns from other non-canal counties, with the exception possibly of Cattaraugus.

On July 28, 1903, a banquet was given under the auspices of the Canal Improvement Association at the auditorium in Utica, attended by 300 citizens of that city. It was the largest banquet ever held in that vicinity and numbered among the prominent banqueters the Hon. Horatio Seymour, ex-State Engineer and Surveyor, who presided; Hon. Philip W. Casler, ex-President of the State Grange; G. E.

Cangiano, editor of *La Luce*; C. E. Watson of Clinton, A. R. Kessinger of Rome, Jacob Agne, S. S. Lowery, Gustave H. Schwab of New York, State Senator William Townsend of Utica, John Andrew of Barneveld, E. B. Griffin of Clinton, E. H. Kingsbury, Mayor of Little Falls, Henry W. Roberts, county treasurer, and many others, including the editors of the local papers and representatives from the neighboring cities and towns.

The first speaker at the banquet was Senator William Townsend, who had voted for the canal referendum measure in the Senate. In his address he said:

"It is eminently fitting that the first gun of the campaign for canal enlargement should be fired in Utica, for it was on the soil of Oneida county, in Rome, that De Witt Clinton, more than three-quarters of a century ago, turned the first sod in the construction of the Erie canal. Perhaps that is the reason why we in this locality have always taken special interest in every movement looking toward the perpetuation and betterment of the State waterway. True it is that we tonight extend a most hearty welcome to the committee on canal improvement under whose auspices this meeting is assembled and at whose expense we seem to be eating and drinking. No great public improvement was ever suggested that did not meet with opposition; it is not to be expected that a proposition to expend one hundred and one millions of State money, to be raised by taxation, will be carried offhand and without some protest. Every community harbors two classes of men, the optimist and the pessimist; men who believe in progress, in advancement, and men who are content to live in the conservatism of the past. . . .

"There is something, it seems to me, beyond dollars and cents involved in this proposition. It is the commercial supremacy of the State. Shall we retain it, or will we allow a narrow, selfish policy to wrest it from us? What has given New York her supremacy? Horatio Seymour in his declining years, sitting on the porch of his Deerfield home overlooking the historic valley of the Mohawk, would delight to call the attention of his visitor to the topography of the country in his range of vision, and in his own entrancing language tell the wonderful effect it had on the early history of the State of New York. How it stood at the parting of the waters, how it gave the Iroquois their commanding position and made the Six Nations masters of their people; how the waters ran to the Hudson, the St. Lawrence and the Gulf of Mexico, creating natural highways of

commerce through this State. . . . Up the Hudson, through the Mohawk and connecting streams and on the Great Lakes she is provided with a natural highway of commerce over which the productions of the mighty West can find their way to the sea. The problem of the future is cheap transportation. Commerce will follow the lines of least resistance. If New York does not provide the means of cheap freight outlet to the ocean, it will seek some other channel and some other locality will have the benefit. . . . Congress will never vote for a barge canal through the State of New York until a majority of the congressmen reside within the State. The representative from the South and West, or the delegate from Honolulu will never give his support to a measure that would so enhance the commercial supremacy of the State of New York. If the work is done, we must do it; and if it is not done, we must rue it. . . . Beyond the question of present cost; against the objections and criticisms that can always be made to any great public improvement, the future prosperity of our State should guide the judgment of her citizens in every ballot cast."¹

F. B. Griffin of Clinton said:

"It has been stated that the Grangers of the State are opposed to the barge canal, but thank God, Marcey Grange is an exception. Other granges have struck a blow at the commercial and industrial prosperity of the State. Six weeks ago I was against the project, but the change of heart was not brought about by my legal or spiritual adviser, but by the exercise of common sense. I am here to-night to answer the arguments I then made. One of the arguments was that it would bring products of the West into competition with the products of the East. I now believe that New York State farmers are no longer sellers but purchasers of the products of the West. Years ago New York was the leading hop producing State of the Union. Now they are produced by the far West and we no longer raise many hops. But today, instead of hops, we are raising products for the canning factories, and they pay better. We all know that canning factory products will not be shipped by the barge canal. We are largely interested in dairy products and the milk we produce is shipped in its natural state to New York City. Whatever adds to the population and prosperity of New York State helps the dairyman of the State. We will not ship our milk by the barge canal, but by railroad and it will go at the reduced rate because the canal is a freight regulator."

1. From report in the *Utica Observer*.

Hon. Philip W. Casler of Little Falls, ex-president of the State Grange, spoke in part as follows:

"I own at Little Falls a farm on which I live and on which I hope my children will live as my ancestors have before me for nearly two hundred years. One of the first things I did when this canal question came up was to determine just how much it would cost me in taxes on my farm should the State be allowed by the vote of the people to issue for this great improvement in its transportation facilities. Our comptroller has figured it all out and states that a tax of \$1.20 per thousand of assessed valuation will create a fund sufficient to pay the interest on the one hundred and one million dollars and liquidate the principal in eighteen years. My assessment is about \$5,000, so it would cost me six dollars per year or \$108 in eighteen years, providing it be raised as a general tax—and we have every reason to believe that it will not be—as my share of the 'terrible burden of taxation' which our friends the anti-canal men tell us will rest on the shoulders of our 'children and grandchildren for generations yet unborn,' should we sanction the measure by our vote. Well, what returns would I get for this extra tax of \$6 per year? The friends of the canal tell me—and its enemies too—so it must be true—that it will make the western feed I have to buy for a \$60 cow, dairy, cheaper whether it comes by rail or water. Well, 50 cents a ton on the feed I would use will pay the tax increase twice over."

Col. Charles E. Watson of Clinton said:

"Our beautiful town of Clinton has long been noted for its educational institutions, its iron industries and its mineral springs. It is now distinguished by being the fountainhead of anti-canal literature, with our venerable friend as editor-in-chief, of whom it might well be said, as the *New York Times* says of John I. Platt, 'he is the avowed foe, not merely of canal improvement, but of canals. If he could have his way the canals would be abandoned and the railroads would get a monopoly of the transportation business. He is not a critic of the plans, nor an advocate of any particular kind of canal. All canals are equally odious to him. Nor is it the frightful sum of one hundred and one millions that scares him. If a canal 43 feet deep and 205 feet wide could be dug straight across the State from the Hudson to lake for a dollar and a quarter, he would sturdily oppose the project.'"

After reviewing several propositions, Col. Watson continues as follows:

"These various propositions are made merely to divide the supporters of the canal. For instance, I will quote from Mr. Haupt, the first speaker of the anti-canal convention at Rochester. He said:

"It is therefore of the utmost importance that in submitting the question of an appropriation for a canal to the people of this State, it should not be hampered by limitations as to capacity, but that it should be of such dimensions as to meet, not only present, but future requirements of this rapidly expanding country. It should be of national character and it will be found that the general policy of the General Government is to help them who help themselves. Let the great Empire State meet the emergency and improve the opportunity for own and the national welfare.'

"Gentlemen, should you think that this was delivered at an anti-canal meeting? The facts are, what these speakers propose would cost twice as much as a barge canal and as to their relative importance I will quote from Mr. Wright, who says: 'The ship canal is just as feasible and just as far advanced as the barge canal project.' Stand together on the thousand-ton barge canal and do a good service to your State."

C. E. Cangiano, editor of the Italian paper *La Luce*, said:

"The only means of competition to the railroads in the past have been the canals, which for some unknown reasons have been allowed to get into such a condition of decadence as to afford no illustration whatever of what properly developed waterways mean. It is for the purpose of placing these waterways upon the highest plane of improvement and efficiency that this campaign has been undertaken. The development of waterways in the various countries of the world has invariably shown that it has been followed by great stimulus to every industrial and commercial industry within their reach."

Other speeches were made by John Andrew of Barneveld and Gustave H. Schwab of New York. The stimulus given to the canal campaign by these meetings in Central New York, within a few miles of Rome where the original Erie canal had its beginning in 1817, on July 4th, attended as this meeting was by prominent citizens from various parts of the Mohawk Valley, made a profound impression

on the voters in that territory, and its influence was felt throughout the State.

The speakers on that occasion represented various shades of opinion that had prevailed from time to time on the canal question, and the unanimity of sentiment which seemed to prevail illustrates the meritorious character of the campaign for canal improvement which won it friends wherever the matter was fairly and dispassionately considered. Only those with preconceived opinions or conflicting interests, long entertained their opposition to the measure after the advantages afforded by canal transportation were fully understood.

On August 1st a large meeting was held at the Three River Point in Onondaga county, which was addressed by the Hon. Benjamin S. Dean of Jamestown. In the course of that address the speaker said:

"Upon the principle that we ought to speak well of the bridge that carries us safely over, every man in the State of New York should take off his hat to the Erie canal. It has made the most prolific and bountiful states in the Union tributary to the greatness of New York; it has diverted the population, which was following the natural waterways into the interior of the country and made them the preservers of the national life, and it deserves some grace of memory at the hands of those who have been prospered by reason of its existence. . . .

"It has been suggested, however, that it would be better for the State of New York to build and equip a four-track railroad along the line of the proposed canal and by this means be able to compete with the railroads. This suggestion comes largely from those who would be the first to denounce such a scheme as socialistic and revolutionary, and is echoed by those who believe in State ownership and those who are ignorant of the economic elements which enter into the problem. A canal-boat of the present dimensions carries approximately two hundred and fifty tons. This boat with its load is drawn by a three-mule team at the rate of two miles an hour. Two hundred and fifty tons is about ten modern car-loads and I undertake to say that there are not three mules in the State of New York that can draw these ten cars, without an ounce of freight, over any average twenty miles of railroad a day. Actual scientific tests have demonstrated that a single horse, weighing twelve hundred pounds,

traveling at the rate of two and a half miles an hour for eleven and a half hours per day, will produce a result equal to the moving of five hundred twenty tons one mile. The same horse working the same time at the same rate will move on a railroad on a level one hundred and fifteen tons one mile and upon a turnpike fourteen tons. It will thus be seen that the energy expended in moving freight by railroad on a level track is more than four times that which is necessary in moving it by water, while it is well known that traffic between Buffalo and the seaboard has to overcome a grade of over 600 feet, multiplied many times by the nature of the country traversed. Assuming, then, that we could construct a four-track railroad, as suggested, for the cost of constructing the enlarged canal, is there any man in the possession of his senses who would think it wise to make this needless expenditure of energies? It would, beyond all question, require more energy to move the cars necessary to carry the traffic, without freight, than would be required to carry the entire estimated tonnage of the canals by water, and the cost of maintaining a railroad per mile is more than the canal by a percentage so large that it is useless to mention figures. The wasteful consumption of coal in locomotive boilers, which realize only from three to five per cent. of the energy, is a matter which is of growing importance and those who look to the welfare of the future must hesitate to continue a policy which is thus wantonly destructive of the resources of the nation.'

Thereafter meetings were called in various parts of the State and addressed by many prominent well-known canal advocates. Among them were the following: On August 22d, at Lily Dale, in Chautauqua, which was addressed by Daniel F. Toomey, Willis H. Tennant, Ernest Cawcroft, Benjamin S. Dean, W. H. Beach, Clare Pickard and Henry W. Hill, and was the first large meeting in the southwestern part of the State. It was attended by people from several counties, prominent among those present being the Hon. John Woodward of Jamestown, Justice of the Supreme Court; Clare A. Pickard and Frank S. Oaks of Cattaraugus.

Hon. John D. Kernan of Utica, who had been the president of the three State Commerce Conventions, made an address on the referendum measure in Troy in August, 1903, in which he set forth in forceful and logical language

the controlling arguments which the people recognized in their affirmative vote on that measure.

The campaign was opened in Jefferson county at a Republican convention, during which Hon. Patrick W. Callinan of Oswego spoke at some length on the pending measure in a manner that impressed the delegates in attendance from that and other counties. The vote in Jefferson county, notwithstanding the hostility of the local press, was 1,924 for it to 11,166 against it. The sentiment, however, along the Black river and canal later became more pro-canal, in view of the prospective improvement of that route.

The opposition was no less active and the press in the rural counties devoted much space to a partial presentation of the facts, which were not generally understood by lay-writers out of touch with the scope and purposes of and data underlying the referendum measure.

On September 16, 1903, a large meeting was held at the Utica Chamber of Commerce, addressed by Hon. John D. Kernan, a former New York State railroad commissioner, in favor of the referendum measure, and opposed by Rev. E. P. Powell of Clinton. During his speech on that occasion, Mr. Kernan said:

"Waterways serve to supplement railroads and highways, but highways and canals are free for public use and hence cannot be entirely monopolized. Railroads are profitable concerns and in business for profit. To protect the people against the tendency of railroads to charge all they can get regardless of the cost of service or a fair profit, has been the object of an immense amount of legislation for fifty years. . . . You cannot regulate complicated railroad rates in that way [by commissions] or by statute and we might as well quit the experiment and try something else. Older nations than we have found this something else to be canals and internal highways, owned and controlled by the State and kept in the same condition of modern improvement that railroads are. These are found to operate effectively as rate regulators, particularly on coarse freight, because water transportation is thus far the cheapest transportation known. Ocean rates average about one-half mill; lake rates, three-quarters of a mill, and canal rates, two mills. Even on our neglected Erie, and New York Central rates on a modern rail-

road, at least six mills per ton per mile, or twelve times the ocean rate. For this reason railroads bring their grain 865 miles by lake to Buffalo, from Chicago, instead of hauling 440 miles by rail.

"The competitive effect of water competition upon rail rates is seen in the following class rates in both directions on two great railroads.

"New York and Pittsburg: 1—45, 2—39, 3—30, 4—21, 5—18, 6—15.

"New York and Buffalo: 1—39, 2—33, 3—28, 4—19, 5—16, 6—12.

"This means that because of canal competition we in New York State pay an average of nearly 5c per one hundred pounds less freight between New York and Buffalo and intermediate stations than the people of Pennsylvania pay the Pennsylvania road for like service.

"Since the days of Clinton the value of the canal as a rate regulator in their day has been urged by our statesmen of all parties, such as Seymour, Tilden, Evarts, Conkling, Fish and Hewett. . . . My practical knowledge of how the farmer needs the canal centers about my farm at Forestport. All the flour we use and much of the grain we feed to our stock comes from the West and we want to get it as cheap as we can. Our canal rates are now just one-half railroad rates, from nearby canal points and that suits us well and will suit us better when the barge canal makes rates cheaper still and from a greater distance. Do not four-fifths of the farmers of the State eat western flour and feed western grain? And if so, do they not want the cheapest way to get it here? We find at Forestport that we can put our land to better use than raising grain for market, and we have no desire to close up canals to pay railroad rates and to go back into that business in competition with cheap fertile western lands.

"It is not the canal that brings eggs, butter, cheese, beef, mutton, pork, lard, vinegar, and fruit to compete with our farmers; that is what the railroads do, and will do, canal or no canal. We can send our potatoes to New York City from Forestport by boat for six or seven cents per bushel, with winter storage added until they are sold. The railroads ask 13 cents a bushel with no storage; and if we had no canal, we fear they would charge more and leave very little of the market price to us, unless it forced the consumer, who is generally as poor as ourselves, to pay a good deal more. . . . Every farmer in the State gets some of this benefit from the canal. Those near the canal get the most benefit and pay the most taxes; but all get some, because, as I have before stated, even here railroad rates are affected by canal competition, or at least were when the canal

was comparatively fit and will be again when it is properly improved and managed. No matter where a farmer lives, his rate to and from New York is on some part of the route lowered by canal competition; a barge canal will lower it much more."¹

The Rev. E. P. Powell said:

"I have consulted the best authorities and find a single track electric railroad can be built for five thousand dollars per mile under all conditions that lie along the Erie canal. A double track would include all equipment except in the cars. The entire cost of an electric road from the Lakes to the Hudson would be under two and a half millions of dollars. The electric power development for the use of the road could be used at the same time for the canals. The road would not be a substitute for the canal, but a supplement. We have thus before us a proposition which meets every argument urged in favor of the barge canal, but avoids the enormous expense; serves as a freight regulator through the winter as well as the summer, can be put in operation inside of two years, serves New York City and all her commercial demands far better than the barge canal could do, even if successful. It does not rob the towns or cities of any of their present rights, but adds to their privileges. A scheme entirely feasible, economic and democratic."

He then proceeded to summarize his argument in sixteen different propositions, some of which were not germane to the questions involved, and all of them more or less impracticable and visionary. They were such as might be expected from a gentleman skilled in academic propositions rather than from a person trained in the practical affairs of State. But they well illustrate the wide range of discussion on the problem during the canal campaign and further illustrate some phases of the opposition encountered from men schooled as was Mr. Powell in theoretical rather than practical matters.

On September 19th at Jamestown, N. Y., Hon. Newell Cheney, former member of Assembly and a prominent leader in State Grange work, said:

"It may be recalled that President Garfield began life as a canal driver.

1. From report in the *Utica Press*.

"Again, it is said that canal transportation is antiquated and this in face of the fact that Canada and all the enterprising countries of Europe are investing millions in building canals and improving their waterways. Our consul-general, Mason, in Germany, best states the condition there. In a recent report he says: 'German statesmanship was among the first to foresee that the time would come when railroads having reached their maximum extension and efficiency, there would remain a vast supply of coarse raw material—coal, ores, timber, stone and crude material—which could be economically carried long distances only by water transportation, and that in a fully-developed national system the proper role of railroads would be to carry passengers and the higher class of merchandize, manufactured from raw materials, which the waterways had brought to their doors.'

"The location of Buffalo at the foot of the lakes is a great gateway of commerce between the West and the East. It has the greatest water and electric power in the world at its command, and furnished adequate water communication with New York, it is destined to be the largest manufacturing and distributing center, and one of the largest cities in the United States. The Congress of the United States, representing the interests of all the states, cannot be expected to make an appropriation for building a canal, giving New York an advantage over other states. If the canal is built, New York must build it. The barge canal is essential to hold the great commerce of the lakes and the West from seeking other routes and to continue the supremacy of New York as the Empire State. This is the logic of good business sense. Every farmer in Chautauqua county will be benefited far above the cost to him, by the increased value of his land and socially as well as financially by the increased inter-communication between city and country."

Mr. Evan Thomas of New York said:

"Either the Erie canal must be improved to modern requirements or New York City, and as a natural consequence the State, lose its commerce, and once started on a down grade the descent is swift."

A. C. Barnes said:

"I believe the canal to be the artery without which our vigorous commercial life cannot be sustained. New conditions are hardly conceivable that will enable land transportation to compete with adequate waterways in cheapness. In my own business, publishing, we now rely on the canals for the bulk of our western shipments. Without them we should have to manufacture them for the western market."

On September 23, 1903, on motion of the Hon. Lewis Nixon, chairman of the Canal Committee of the Board of Trade and Transportation, the following timely resolution was adopted:

"Resolved, By the New York Board of Trade of Transportation that it is essential to the prosperity of our city and State, and to their continued supremacy in commerce, manufacture and wealth that the people of the State at the general election to be held on the 3rd of November next, shall endorse by their votes Chapter 147 of the Laws of 1903, entitled 'An act making provision for issuing bonds to the amount of not to exceed one hundred one million dollars for the improvement of the Erie canal, the Oswego canal and the Champlain canal,' and providing for the submission of the same to the people to be voted upon at the general election to be held in the year 1903; be it further

"Resolved, That we earnestly appeal to all citizens, without regard to party affiliation, to register and vote for the canal proposition upon this important subject to the especial attention of all the voters of every polling place on election day; be it further

"Resolved, That the president of the board be requested to appoint a special committee of fifty members for purpose of bringing this important subject to the especial attention of all the voters of Greater New York, and to coöperate with similar committees (of other organizations) if deemed advisable."

This resolution was unanimously adopted. Thereupon the president, the Hon. Oscar S. Straus, appointed a committee of fifty of the leading business men of New York City, among whom were Lewis Nixon, ex-Mayor Charles A. Schieren, Darwin R. James, G. Waldo Smith, Ludwig Nissen, William E. Cleary, Frank S. Witherbee, General Henry E. Tremain, William B. Parsons, General E. A. McAlpin, Hugh J. Chisholm, Aaron Vanderbilt, Charles E. Hughes, Edward F. Cole, Philip S. Tilden, Col. A. G. Mills and others.

Prominent among the canal advocates were such well-known gentlemen as Hon. Bird S. Coler, ex-Mayor Seth Low, and ex-Mayor Charles A. Schieren, all of whom devoted time and presented strong arguments in favor of canal improvement before that question became a matter for popular consideration. Both Mr. Coler and Mr. Schieren strongly advocated the approval of the referendum

measure. During the latter part of the campaign on that subject Mr. Schieren was at the head of the Canal Enlargement Committee of Greater New York, and gave unsparingly of his time to carry to a successful conclusion the canal issue. The Hon. Seth Low had repeatedly declared his belief in the importance of water transportation as an economic proposition, and approved the canal referendum measure.

On September 24, 1903, Governor Benjamin Odell, at the Seneca county fair, said:

"Already the supremacy of the port of New York is threatened and upon us is the responsibility for solution of the problem and for the preservation of our commerce. High and patriotic motives should control your action. It seems almost incredible that among intelligent men there should be an entire elimination of higher motives in reaching a decision in this matter, because of the expenditure of money or the taxation which may result. I have too much faith in the common sense of the people, particularly those of the rural communities, to believe that unworthy motives may prevent public improvements that mean the advancement and progress of the State—to believe that the fear of taxes may prevent New York from taking and holding her proper place in the great future.

"Each one of the 370,000 farmers in this State has an interest in the growth of the city of New York, because it is the principal market for their \$245,270,600 worth of products; because their \$55,474,155 worth of dairy products would be much less valuable if poorly paid workmen were their customers.

"I make these suggestions because there is a possibility of the \$1,069,723,895 worth of farm lands being taxed its proportion of the necessary amount of about \$4,200,000 annually for the enlargement of the Erie canal. Do you understand how small and insignificant the amount would actually be if the tax were authorized and should be levied directly upon these lands? While I have faith in the promise that a direct tax shall not be levied and do not admit that the necessity will ever arise for it again, yet let us suppose that it will be, and what is the result? Of the total assessment of the State, this land does not average much more than one-tenth. The average value per acre in the State is \$47.23—in other words a hundred acre farm would cost \$4723. The average assessment is but 50 per cent. and the assessed valuation of the one hundred acre farm would be but \$23,061. With the State valuation of six billion dollars, the av-

erage tax, under a fifty year bond plan, would be 70 cents per one thousand dollars of valuation, or \$1.65 on the hundred acre farm.

"If, therefore, better water facilities will bring into the State more manufactories; if we can bring the iron trade from the West; if your markets are enlarged, do you think that out of the prosperous future you men of the farm can afford to pay this small pittance for the building and supporting of this great improvement? I give these figures for the purpose of controverting the claim that increased tax burdens will follow, to the end that you may weigh this question more upon the lines of public utility and necessity. The past gives ample evidence of the growth which followed the construction of the Erie canal. The present is not lacking of evidence of its value. The future depends upon our own conception of the necessities of the times. If we seize every opportunity for advancement, if we work together for the public interest, then we shall be able to accomplish results which will be for the permanent good of all parts of the State, similar to those which have followed great public improvements in the city of New York and other municipalities, which have resulted in increased valuation, better markets, and a greater ability to meet the other problems of our State, particularly those which have to do with rural communities."

This speech of Governor Odell's was widely circulated and read throughout the State, and made a deep impression on the voters. It is a clear statement of the questions involved in the referendum measure, worthy of the Governor who had given the measure his official approval and forever linked his name with that of De Witt Clinton, the author of the first great canal act of this State.

On October 4, 1903, the historical phases of the canal question were the subject of consideration in the Buffalo Historical Society at a meeting held in its lecture-room, which was largely attended by prominent Buffalonians interested in the matter. By request I made the principal address on that occasion. On the following evening I spoke in the council chamber in Troy in joint debate with the Hon. John I. Platt of Poughkeepsie. In the course of his argument Mr. Platt said:

"Whenever you meet a canal man he always claims that canal rates are cheaper than railroad rates. I do not know where in the world they get their figures from. They certainly are not so. They

evidently do not figure on the amount the canals cost the State, but merely the cost to the shippers. Here is a question of public ownership. All authorities on public ownership agree that users should pay the expense. I never heard this axiom, as it has come to be looked upon, disputed. . . . Our salvation is in our railways and we should encourage rather than discourage railroads. It is a shame to try to tax them out of existence. Certainly it is not right to tax the railroads three millions per year and then expend three millions on the canals."

In reply to the statements of Mr. Platt that in fixing the canal rate the original cost of the canal system as well as the operating expenses should be taken into consideration, I stated that the same principle should be applied in determining the railway rate, and if that method were to be adopted in the case of the New York Central system, with its existing funded debt of approximately \$230,414,845, its capital stock of \$150,000,000, and its operating expenses, it would be seen that the then existing railway rate of 6.4 mills per ton mile very naturally and necessarily exceeded the present canal rate and far exceeded the probable barge canal rate and that Mr. Platt's argument would not stand the test, which he had invoked and intended to be applied only in determining the canal rate.

Notwithstanding the numerous meetings held in various parts of the State, the aggressiveness of the opposition was so great and the apparent apathy through the rural counties so stolid, that grave doubt existed in some localities as to the result at the coming election. Commercial bodies in New York City finally entered upon a spirited campaign. The New York Produce Exchange, with its canal enlargement committee, under the chairmanship of that veteran canal advocate, Henry B. Hebert, was untiring in its energy, resourcefulness and ability in formulating and disseminating information that would enlighten the electors upon various phases of the subject. The Merchants' Association of New York sent out thousands of circulars, embodying such statements as the following:

"By far the greater number of business men and manufacturers in this State, and a very large proportion of all other classes, are

firm in the belief that the continued prosperity of this State depends upon improving and enlarging the Erie canal and developing it to the fullest capacity, in order that the great current of traffic may not be diverted to other channels. Boston, Baltimore, Philadelphia, New Orleans, Galveston, and many other smaller ports, are all gaining rapidly in the volume of their commerce. New York alone is falling behind. The reason why it is falling behind is that great railroad interests are diverting its traffic, which can only be regained and held by canal enlargement.

"New York's commercial supremacy depends upon keeping trade currents flowing through this city. Trade currents follow the line of least resistance; that is to say, the line of transportation that is cheapest.

"New York is what it is because about seventy-five years ago it was able to distribute manufactured products throughout a large part of the United States and transport the natural products of those sections to the seacoast at less cost for transportation than was possible to other trade centers. Both Boston and Philadelphia led New York before that. The advantage passed to New York when the Erie canal came into existence. The great undertaking made an easy pathway from what was then the extreme Northwest. It was the chief element in the rapid development of the Northwestern States, for the reason that it enabled them to find a foreign market for their grain products, without which market those products had little value.

"A waterway from the heart of the continent to the seacoast created a vast export in grain. The trade centered almost wholly in this city. The ships that came here to carry these natural products to foreign countries could not come empty. This brought cargoes of the manufactured products which we then did not make, and, therefore, New York became the chief depot whence the people of the whole country supplied most of their needs. . . .

"Today cheap transportation requires large cargoes. Trade currents will flow wherever large cargoes can be floated, and only there. The Erie canal created New York, so to speak. Only its enlargement can maintain what it has already won and create a far greater future prosperity. Preëminence in foreign commerce is the manifest destiny of this city, provided that it continues to afford the line of cheapest transportation.

"Factories in the midst of farms is the condition of greatest prosperity for State or Nation.

"The most profitable condition for farmers is a large home market for their products.

"The most profitable condition for retail merchants is the exist-

ence of a large wage-earning population, receiving and expending a large volume of wages every week.

"The most advantageous place for factories is where raw materials, fuel, and food supply can be brought together most cheaply, and finished products distributed at least cost.

"Water transportation under the most favorable conditions is always cheaper than rail transportation under the most favorable conditions. . . .

"The Merchants' Association of New York urges upon the people of the State in every locality to give serious consideration to these great economic truths, which not only warrant but demand the outlay by the State of the great sum of money required to deepen the Erie canal to float thousand-ton barges. The people everywhere are therefore urged to vote for that enlargement at the coming election."

The Board of Trade and Transportation, which for many years had been identified with all canal legislation, conducted a most aggressive and successful campaign for several months before the vote was had upon the referendum measure. Its efficient board of directors, acting through its secretary, Mr. Gardner, prepared and distributed thousands of circulars and pamphlets throughout the State and finally conducted an organized campaign in the city of Greater New York.

During the summer months Mr. Gustav H. Schwab had been chairman of the canal enlargement committee, and the strain was such that he had to relinquish that position and take a trip to Europe, and the Hon. Charles A. Schieren, ex-Mayor of Brooklyn, was appointed to fill the chairmanship of the committee during October and November.

The anxiety, however, among canal men throughout the State was such that the New York commercial bodies were appealed to and as a result the Canal Association of Greater New York held a banquet at Delmonico's in New York City on Tuesday, October 6, 1903, which was presided over by Henry B. Hebert of the New York Produce Exchange and was attended by canal advocates from various parts of the State and representatives of forty metropolitan journals. In the opening address, Mr. Hebert said:

"We are glad of this occasion, for it furnishes an opportunity to present the canal proposition under the latest conditions. About a year ago, the canal proposition was a different proposition. Then it was a question brought to your attention as to the loss of trade and commerce to the State of New York and this great metropolis, through the workings of the differential in the freight rate. Those conditions exist today, only to a greater extent. You will find, if you go into the city of Brooklyn, that they are dismantling the warehouses along the water front, and that the assessable values in the city of Brooklyn have been greatly decreased on that account. Stores that at one time in the history of Brooklyn were teeming with the products brought from the ocean and also from the Great Lakes really exist no more. That is one of the evidences of the hostile traffic conditions which govern the commerce of this State.

"The canal proposition of today, as I have already said, is an entirely different proposition from that presented last year, for the reason that it is now a question of the expenditure of an immense amount of money—one hundred and one millions of dollars. It also has its relation to the burdens of the people, which you call taxation, and then it has also that question which is uppermost at the present time, the support of the people themselves. And it is out of these three conditions, that the danger lies to this matter.

"We have in the midst of this State an element working against the canal, the improvement of it, and we have an element that would still hold the control of its traffic conditions. And it is the danger of the hour that confronts us; no matter how well we may go to work about it or how energetic may be the campaign, that we cannot reach all the people of the State and tell them the needs of the canal improvement, in the interest of the people of the State.

"To show that there is this condition existing today, I desire to read to you a letter, and it is only one of many that reaches the secretaries of the Canal Improvement State Committee—that come almost daily to the office of that committee; and it shows, as I have already stated, this widespread ignorance regarding the canal question. This letter was sent to Governor Odell, simply because, doubtless, the man had read the Governor's speech regarding the question of canal improvement; and so he writes Governor Odell, and from the Executive office it comes to New York:

"HON. B. B. ODELL,
Governor of New York.

"DEAR SIR: Please send me any public document at hand that will help me to talk and vote understandingly on the canal question. I favor the canal, but none of the local papers take that side of it.

They all seem to be against it and unfair in that which they publish. Any literature published by those favoring the canal will be thankfully received.'

"This comes from Southport, Long Island. . . . Well now, we are getting that constantly, gentlemen, and we are doing the best we know how to answer these questions, sending them literature and letters and other matter, not only to encourage but to instruct. Therefore, you will see that there is danger at the present time regarding this matter which even the most active of us find we are unable, owing to limitations, to meet the requirements of the case. Therefore, it is with delight that we meet distinguished members of the metropolitan press, in order that we may tell them of the ignorance that must be combatted.

"As canal advocates, we are thoroughly posted, we are satisfied. We know that the canal is vital to every interest of the State. But there are thousands of gentlemen who would like to be told all about this matter, so that they might go to the polls on the 3rd of November and vote intelligently, and the fear is that many may go to the polls and because of this ignorance vote "No" to a proposition for which they would otherwise vote "Yes." And we say to you, gentlemen of the press, that we think it is not only a question of commerce and the well-being of the city and the State, but it is also a matter of patriotism because you will bear in mind that that which interferes with business takes away the ability of the taxpayer and householder and the head of the family to properly support his home.

"If you will take the pains to inquire into the matter, you will find that this greatest State, this great State of New York, this Empire State of the Union, is being depopulated year by year. This is no fairy tale. There are twenty-two counties of this State whose population is not so large as ten years ago. There are twenty-seven counties of the State that, if you will deduct one or two towns, show a decrease in the population. You may take Monroe county for instance, that has for its large center of population the city of Rochester, and deduct the increase of population of the city of Rochester and Monroe county is 'shy' of its population of ten years ago.

"Now I say to you, if you limit the home, and the homes, the character of the homes makes the commonwealth, and if you take away the ability of the State to give its citizens the power to earn a living, that State is doomed in the end. And so, gentlemen of the press, we tell you these things that you may take up this song and sing it so well that the people of this city, if nowhere else, where your papers are read with an avidity greater perhaps than any place on the face of the earth, may turn the tide, so that the State of New

York may be perpetuated in the commercial supremacy and also as the Empire State of the Union."

The other speakers on that occasion were General Francis V. Greene, George Clinton of Buffalo, Col. Thomas W. Symons, Abel E. Blackmar, Lewis Nixon, Edward A. Bond, E. F. King, Charles F. Bostwick and myself. Col. Symons in the course of his speech said:

"Mr. Blackmar and myself last winter were asked to draw up a bill for the expenditure of the money. All our efforts—our best efforts—were bent upon producing a bill which would provide for the expenditure of this money; in the first place, to get a constitutional bill, a bill which provides for the raising of money, and then provides for the safeguarding of the expenditure of this money. . . . The obvious method of handling a big work like this would be to put it in the hands of a strong commission; but that is prohibited by the constitution. It must be in the hands of either the Superintendent of Public Works or the State Engineer. After very careful consideration we concluded that the proper way was to put it as much as possible in the hands of the State Engineer, and provide him with the necessary assistance to do the work, though this bill provides that he shall have a deputy, who shall represent him wherever it is necessary, and all the minor assistants, and it furthermore provides that the work shall be under the general supervision of a board of five expert engineers, to be appointed by the Governor, who will advise and consult with the State Engineer, who will keep constant supervision over the work and over all the minor engineers, and report to the Governor whenever they see fit, or whenever the Governor asks them to do so. In this way it is believed that if these men are properly selected the expenditure of this money will be so guarded that fraud, waste and dishonesty can be almost altogether eliminated from the work.

"The three items, therefore, which I wish to endorse fully and which I would like to instil with my own confidence into you, are, that the route is properly selected; and that the estimates are ample, and I believe more than ample; and that the bill provides such safeguards that the money will be honestly, efficiently and economically expended."

The effect of this banquet was perceptible upon the tone of editorials that began to appear in the metropolitan journals and continued until the vote on the referendum measure in November.

The New York *Journal*, the New York *World*, the *Times*, *Tribune*, the *Herald*, and others devoted considerable space to the presentation of points made in favor of the referendum measure and in reply to the journals of the opposition. New York began to awaken to the importance of voting favorably upon the measure. Theretofore it had been so absorbed in its diverse and multifarious business affairs, that the larger matter of canal improvement had received little consideration notwithstanding the fact that New York city was to be the chief benefactor of the proposed improvement. After the Delmonico dinner, however, with daily leading editorials on the subject, the voters of New York were made acquainted with the referendum measure and the importance of canal improvement to that city, and began to show some interest in the project. All the leading commercial bodies in the city, and especially the Canal Improvement Committee, disseminated literature treating of various phases of the questions involved, and conducted a campaign of education, the like of which has never been known in this State. Not only were circulars and pamphlets distributed, but textbooks were prepared and distributed to speakers, newspaper writers and others, that they might have accurate information to present to the voters. A bureau was established in connection with the New York Produce Exchange for this purpose.

While this was going on in New York and data were being prepared by Howard J. Smith of Buffalo for the rural press, an anti-canal bureau was established at Rochester which distributed a large amount of circulars, papers, pamphlets and speeches in opposition to the measure. Among such was a pamphlet entitled "Twenty good reasons why you should vote No," compiled under the auspices of the Rochester Chamber of Commerce. These reasons embodied editorials from the *Engineering News*, the New York *Sun*, the Rochester *Democrat and Chronicle*, the *Union and Advertiser*, the Rochester *Herald*, the Rochester *Post-Express*, the *Utica Press*, the Albany *Argus*, the Syracuse *Post-Standard*, the Binghamton *Leader*, the Ithaca *Journal*, and several others in addition to reprints of speeches made

by Senator Merton E. Lewis, ex-Assemblyman Brownell of Broome county, and articles by John A. C. Wright, E. B. Norris, Master of the New York State Grange; George Bullard, John M. Ives, Secretary of the Rochester Chamber of Commerce; George W. Rafter, D. H. Burrell of Little Falls, and others.

In the course of his speech before the Rochester Chamber of Commerce, October 5, 1903, Senator Merton E. Lewis is reported to have said:

"This appropriation of one hundred and one millions means doubling the tax of every taxpayer in the State of New York for the next fifty years. The amount for several years raised by direct taxation has been from seven to eight millions. The Erie canal cost last year for maintenance, operating expenses, ordinary and extraordinary repairs, and interest on the canal debt one million, seven hundred and fifty thousand dollars in round numbers. I assume that the barge canal would cost double for these purposes. The interest at 3 per cent. would amount to \$300,000 and the two million dollars for the sinking fund, allowing them fifty years instead of eighteen provided for in the bill, and we have from eight million to eighty-five hundred thousand per year. Allowing the claim that repairs will not double, you have at least seven million dollars annually above what has been raised by direct taxation before. It means a total of fourteen millions, doubling the tax every year for fifty years."

Senator Thomas B. Dun, president of the Rochester Chamber of Commerce, is reported to have said:

"It has looked to me from the start that the barge canal scheme was not a business proposition. That primarily is why I gave the matter attention. This view is borne out by our representatives in the Legislature and by many business men of Rochester with whom I have talked. The main idea with these men was that there would be no possible opposition to a deep waterway constructed by the Federal Government and that the whole country, especially ore-producing and grain-growing sections, were going to be largely benefited by cheaper transportation of their products and it is a fair proposition that they pay their share of building any canal."

The New York *Times* characterized the anti-canal enlargement sentiment as "The Rochester Idea," because it

seemed to emanate largely from the opposing forces centered in that city.

Neither of the leading engineers of Rochester favored the barge canal improvement scheme in its inception. George W. Rafter had expressed himself in favor of a ship canal by the way of Lake Ontario, and J. Y. McClintock had favored a deep waterway along the line of the Erie canal sufficient to develop eight hundred thousand horse-power, without reference to its use as a means of transportation.¹ Mr. McClintock, however, later became a convert to the proposition.

Much of the opposition centered in and about Rochester was based on lay rather than on expert engineering opinion, and accordingly had little weight with voters, although Monroe and some of the adjacent interior counties cast a majority vote against the referendum measure.

On October 15th a large canal meeting was held at the Academy Hall in the city of Dunkirk, which was presided over by Daniel F. Toomey, editor of the *Dunkirk Herald*, and addresses were made by Philip A. Laing of Buffalo, Benjamin S. Dean of Jamestown, and myself. Chautauqua was known to be an anti-canal county, but there were strong canal men in various parts of it and no one did more energetic service than Daniel F. Toomey in his *Herald* from week to week in supporting the referendum measure. On the occasion of that meeting Mr. Laing said:

"The men who constructed the Erie canal took advantage of the New York State position which drew the great business of the Northwest. You will find as years go by, if this canal is not constructed, that more and more grain will go through Canada. Railroads cannot get it or handle it. There is coming down from Lake Superior 70 per cent. of the iron ore of this country. It is being taken to Pittsburg, manufactured and transported over railroads at high figures. By constructing a canal iron can be manufactured and distributed to better advantage at the foot of Lake Erie than any place in the world."

Mr. Dean said:

"I do not believe that we want a ship canal for the purpose of increasing the commerce of Canada. My patriotism does not run in

1. See Rafter's "Hydraulogy of the State of New York," p. 820.

that direction. Contrary to the opinion among some people, public works do not always cost more than the appropriation, as instanced in the case of the harbor at Buffalo, which was made for 20 per cent. less than the appropriation."

On October 16, 1903, an important canal meeting was held in the Common Council chamber in Cohoes, under the auspices of the Business Men's Association, addressed by David Van Auken, civil engineer, who gave a brief outline touching the diversion of water and the effect upon all water power in that city, by reason of the proposed change in the canal route from Rexford Flats to the Hudson river. The water privileges in Cohoes were large and used in the extensive factories, and there was a strong sentiment against any interference with their use, by local manufacturers. The address of Mr. Van Auken on that occasion cleared up much that was theretofore considered doubtful and did much to allay public sentiment which was considered hostile to the referendum measure. An address was also made on that occasion by myself, in which I discussed the industrial growth of the cities and towns in that vicinity and the advantages to accrue to Cohoes and neighboring villages as a result of further canal improvement. The effect of that meeting is evidenced by the fact that the popular vote in Cohoes on the canal measure was approximately three for it to one against it.

During the barge canal campaign a joint debate occurred between John I. Platt of Poughkeepsie in opposition to the referendum measure, and Willis H. Tennant of Mayville, in favor of it, at Prattsburg, the Three River Point, at the Chemung county fair, at Elmira, Utica, Cassadaga, Brocton, Binghamton, Dunkirk, and Syracuse. In the course of this joint debate, Mr. Platt announced that in case "the people authorized the building of the barge canal it will be too small and out of date before they get it fairly completed." To which Mr. Tennant answered:

"I hope so. I hope the stream of western commerce flowing across our State to the seaboard and foreign markets and flowing across our State from our eastern manufacturing centers and ports of the world, will increase to such an extent that the great barge

canal when completed as contemplated will be too small and need another enlargement. What a harvest New York State citizens will be reaping in the way of furnishing work, supplies, etc., while it is passing through our State on a run of almost 500 miles each way between Buffalo and New York and between New York and Buffalo, not to mention the labor and supplies that must be had in connection with the local commerce shipped on the canal from one point to another within our State, which by millions and millions of tons has exceeded the through commerce. What magnificent cities we will then have along the course! Syracuse will soon be up to the one-half million mark, with Buffalo up in the million class, while smaller towns and villages will double in size again and again. Let the day speed its coming when the great barge canal becomes too small to handle the freight over it for transportation across our State from east to west."

This series of debates created much interest in the rural localities and were interspersed with anecdote and repartee to the amusement of the rural audiences, who theretofore had manifested little interest in this important public improvement. Mr. Platt had made a careful study of transportation questions in this State, was resourceful in argument and a skilled debater. He presented altogether some of the most plausible arguments that were made by the opposition. Mr. Tennant was no less resourceful and well informed, and had the additional advantage of being in close touch with the temper and conditions of rural communities. He thoroughly understood the prejudices that existed and what had produced them. He spoke convincingly in many localities and was able to remove to some extent these prejudices. At Prattsburg, it was said, that before the joint debate between Mr. Platt and Mr. Tennant, there was not a single vote in the town favorable to the barge canal project, but at the election seventy votes were cast in favor of it. In other localities where he spoke, similar results were obtained. He was one of the popular speakers of that campaign.

On October 23, 1903, I received a letter from George H. Kinter, formerly of Pennsylvania, which was published and in which he said:

"I formerly lived in the State of Pennsylvania, in a town of one thousand inhabitants, in which business was flourishing at the time

the Pennsylvania Railroad Company bought up the Pennsylvania canals several years ago. At that time the town had four well-appointed hotels, with ample stabling for hundreds of horses. In addition to its uptown stores, it had two large boatmen's groceries and supply houses. It had two boat yards, one dry dock, a sawmill and shipping trestle and large tannery employing many men, receiving and shipping large quantities of bark and leather. It was a common thing in those days for canal-boat cargoes of lumber, shingles, coal, ties, etc., to be received in that town by canal. There were twelve boat owners in the town who operated one or two boats each. A flourishing business was carried on in this town over the canal, which has now entirely ceased owing to its purchase by the railroad company, and the splendid waterway has gone out of commission. The history of this town, Dauphin, is repeated in many other parts of the State, and the once flourishing towns then in touch with water transportation have lost their commerce and their industries, and some considerable portion of their population. In place of the canal transportation there is a railway and freight station, but the railroad freight rates have so increased as to drive hundreds of small industries out of business. From experience, therefore, I strongly urge the improvement of the Erie canal by the State of New York as a recognized necessity, for the transportation of freight by water is always cheaper than transportation by rail. The present issue involves the commercial supremacy of the Empire State. If the farmers and residents of canal towns fail to vote 'yes' on the canal referendum measure, it will not be many years until these same towns and districts will suffer a fate similar to that of which I have been telling you in Pennsylvania which has befallen those towns."

Upon invitation of the principal of the Masten Park high school, of Buffalo, I discussed the referendum measure before the 1,200 students of that institution on October 23, 1903. The academic phases of the problems involved elicited interest in many educational institutions. The students eagerly sought literature on the subject and engaged in joint debates in localities where pro-canal advocates were as scarce as anti-slavery advocates in the South during the Civil War, and where the feeling was quite as intense. The open-mindedness of the student bodies throughout the State was one of the hopeful signs of the campaign. Wherever fair and dispassionate consideration was given to the subject it won for itself, on its merits, friends by the scores.

On October 24, 1903, at the request of the Canal Enlargement Committee of the State of New York I was designated to make an address in behalf of canal improvement at the county fair in anti-canal Wayne county. John I. Platt was designated by the anti-canal people to speak at the same time in opposition to the referendum measure, but he and other anti-canal speakers did not keep the engagement. The *Wayne County Review*, in its issue of October 1st, said:

"The *Review* is confident that Mr. Hill's argument is unanswerable, and commends perusal of it most heartily to the intelligent voters of this county. It commends the speech as emanating from a man who has successfully led the canal discussion in the Constitutional Convention of 1894, who was most influential in incorporating the canal enlargement plank of the Republican State platform last year, and who defeated the opposition to canal enlargement in the debate in the Senate last winter. It commends his speech also for giving a fair presentation of the facts, for sound and logical deduction from the facts, and for the high and moral point of view in which the subject is treated. Every voter in the county, who wishes to inform himself on the great question of the hour, should give the argument careful consideration. That in fact is all that is asked by any friend of the canals."

That meeting was attended by a large number of prominent men of Wayne county, including E. M. McGonigal, R. P. Ostrander, Albert Yeomans and others, and though the sentiment was strongly anti-canal, respectful and courteous attention was given to the speaker throughout his address. The vote of Wayne county on the referendum measure was 2,473 for it, and 7,691 against it.

During the campaign it was the policy of the canal advocates to go into the anti-canal counties, and in every instance, where that was done, good results were obtained, although it was not expected or possible to secure a majority vote in these localities.

On October 29, 1903, a mass meeting was held in Lockport, attended by nearly all the prominent business men of that city; among them were Senator T. E. Ellsworth, ex-Assemblyman John T. Darrison, C. W. Hatch, C. G. Sut-

liff, H. D. McNeil, F. P. Weaver and scores of others. Hon. John E. Pound was made chairman of the meeting, and introduced the first speaker of the evening, the Hon. Richard Crowley, who said:

"People say that the day of canals has gone by, and that they must give way to other kinds of transportation. This is in a sense true of such things as require speedy movement, such as passengers and perishable freight, but the coarser commodities such as ore, coal and iron can be more cheaply shipped on the canal. . . . Canada with a smaller assessed valuation than the State of New York, is expending fifty millions on canals. . . . This State has done nothing to improve its canals since 1862, to make it possible for them to cope with the railroads. Lockport people know that at the close of navigation freight rates always go up, and *vice versa*."

Theodore S. Fassett reviewed the history of the canal enlargement proposition from its inception to the passage of the referendum measure, and in concluding his speech said:

"I want to know what can stop the completion of an industrial city extending from Stony Point on Lake Erie along the Niagara river to Niagara Falls. Most of the men before me, if they live only the ordinary span of life, would be able to traverse the 28-mile length of that city, without at any time being out of sight and sound of humming industries. The forest of chimneys would not burden the air with a pall of black smoke, but emitting flashes of electricity would indicate a power being used below, cheaper and more powerful than could be generated from any coal fuel. You may be in the greatest industrial city of the greatest industrial country on earth. You men then will want to be able to tell your children and your children's children that you were wise enough back in 1895 to help by your vote what gave the impulse to that great city, the big one-thousand ton barge canal."

Mr. S. Wallace Dempsey and the writer also made speeches on that occasion.

The Supreme Court of the United States rendered its decision in the case of *Perry vs. Haines*¹ on October 26, 1903, holding that the Erie canal, which though lying wholly in the State of New York, forms a part of a con-

1. See 191 U. S., 17-55.

tinuous highway for interstate and foreign commerce, by connecting Lake Erie with the Hudson river, is a navigable water of the United States as distinguished from a navigable water of the State, and that boats engaged in navigating the Erie canal were within the contemplation of the maritime law, over which the Federal courts exercise admiralty jurisdiction. The effect of that decision was to stimulate the anti-canal press to more vigorous attacks against the referendum measure, and to assert that "the Supreme Court of the United States had made a hard hit in favor of the taxpayer of the State of New York by a decision which declares that the Erie canal is an inter-state commerce route, and subject to Federal jurisdiction," and that "the vast range of inland waterways formerly supposed to be within the domain of State sovereignty were now held to be under the national control." The evident purpose of these leaders occasioned by the decision in the case of *Perry vs. Haines*, was to present still further grounds for an adverse vote on the referendum measure. Although the agitation over that decision did not defeat the measure, it had a deterrent effect in some localities upon voters who could not be fully advised as to its import within the short time elapsing between the rendition of the decision and the vote on the referendum measure.

In the following communication may be seen the use made of that decision in the city of New York, where pro-canal sentiment was strongest, and where it would do the greatest harm on account of the half million or more voters to be affected.

On October 29, 1903, Andrew H. Green of New York City addressed a letter to the electorate of that municipality, advising a negative vote on the canal referendum, stating that "the total cost of the bond issue and interest thereon would approximate 155 millions of dollars, and that at least 100 millions of that amount would fall upon the City of New York." He also said:

"I have no hesitation in saying that we are not justified in assuming this burden in view of the obligations already incurred in the pressing requirement for municipal improvement of more imme-

diating value to our commercial and residential interests, and in view of the present situation respecting plans for other more capacious waterways from the lakes to tidewater. It is a cause for no little surprise that in view of the consequences which the affirmation of this proposition will entail upon the taxpayers of this city, the hand of our municipal government should have given it even the semblance of sanction."

He concludes:

"The remarkable decision of the United States Supreme Court given out yesterday, establishing admiralty jurisdiction over the Erie canal, is another formidable reason against the construction of this barge canal, the full effect of which is not yet fully realized. Shall we have the proposed ship canal with all its superior advantages, built by the General Government, or the barge canal at a cost of \$150,000,000 to the State, and at a call for \$100,000,000 from the taxpayers of this city?"

Mr. Green was consistent in his opposition to canal improvement from the time of the Constitutional Convention in 1894, wherein he spoke and voted against amending the Constitution,¹ down to the time of the meeting of the committee in his office to formulate the Continental Waterways Association already referred to, and to his final appeal to the electorate of New York on October 29, 1903.

On October 30, 1903, Dr. John D. Bonnar of Buffalo, who for many years had taken a deep interest in the matter of transportation by water, and attended many conventions and made addresses on the subject, through the columns of the *New York Times*, presented an argument in favor of a trans-State waterway, and in doing so took occasion to call particular attention to the importance of our foreign commerce and its relation to the port of New York. Dr. Bonnar spoke of canal development in Europe and freight rates on the Great Lakes, Atlantic Ocean and the proposed waterway intercommunicating between the same, and stated facts and gave figures in refutation of the anti-canal argument set forth in a pamphlet issued by the Rochester Chamber of Commerce, which was conducting a bureau for

1. See Vol. IV., Revised Records of the Constitutional Convention of 1894, pp. 963, 969.

the dissemination of anti-canal literature through the State. In this article Dr. Bonnar said:

"The proposed barge canal can do for 50 cents, inclusive of interest and cost of maintenance, what is now done by the railroads for three dollars, exclusive of terminal charges. As compared with the present canal rates on a twenty million tonnage, there will be an annual saving of ten million dollars, and even though there would be an outlay of seven millions for a sinking fund and operating expenses, there will still be a net saving of three million dollars annually to the State. The canal will reduce freight not alone to the cities along its route, but to every other contiguous section of the State and country tributary, north, south and west. A vote for the barge canal means a vote for prosperity, not alone to the cities, but to every village, hamlet and farm of the State. Manchester spent \$75,000,000 to save four cents per bushel by rail. Our Government has spent nearly \$60,000,000 to improve our lake channels and harbors. Our duty to complete the modern route to the sea is plain, and needs only to be understood to be adopted with the greatest energy."

The rural counties were generally opposed to the referendum measure, but still there were in nearly every town men actively outspoken in favor of the adoption of the referendum measure. In Chautauqua county, these included such representative citizens as Justice John Woodward, Justice John S. Lambert, Justice Alfred Spring, Justice Warren B. Hooker, for several years chairman of the Rivers and Harbors Committee of Congress; Major J. Emil Johnson, Orsino E. Jones, Clare A. Pickard, Peter H. Hoyt, Hon. Obed Edson, Ralph A. Hall, Geary E. Ryckman, W. H. Bach, Charles B. Leach, Dr. T. D. Strong, Fred R. Green, Frank E. Sherman, James H. Flagler, Frank H. Mott, A. Frank Jenks, Conrad Thurston, George Martyn, R. E. Post, George B. Smith, Henry Watson, John A. Love, Allen A. Stevens, Allen A. Gould, Henry J. Montgomery, A. A. Van Dusen, Henry H. Cooper, Clarence B. Cipperly, Dr. F. D. Strong of Westfield, Daniel F. Toomey, who published the leading canal paper in the county, the *Dunkirk Herald*, and others.

In Cattaraugus county were Frank S. Oakes, president of Cattaraugus village; Lynn Ballard, Sanford F. Burger,

W. B. Easton, Orlando White, Herbert C. Rich, Col. E. A. Nash, C. M. Rhoades, Jas. W. Watson, H. W. Hinman, Edson F. Beach, James S. Whipple, E. O. Willson, C. H. Rich, Chas. J. Rich, H. P. Bishop, and A. L. Sherman. Of these men, Mr. Oakes was outspoken and active during the campaign for canal improvement. He wrote several letters to the *Cattaraugus Republican*, in which he reviewed in the main the arguments advanced in favor of the referendum measure and called particular attention to the advantages to accrue to the people of that county from the adoption of the referendum bill. Though living at some distance from the proposed waterway, he took a broad view of the importance of cheap transportation through the State, which would enable the industrial centers to maintain their growth and these in turn would become the absorbing centers of the agricultural products in counties not in direct touch with canal transportation.

In a letter addressed to Elliott T. Burrows, president of the New York Produce Exchange, dated April 6, 1900, Mr. Oakes says that he had interviewed several of the leading men in his township, Cattaraugus, and found them unanimous in favor of the improvement of the canals and the passage of the survey bill in question. Among those interviewed were H. C. Rich, president of the Bank of Cattaraugus, S. F. Burger, supervisor of the town, and C. Moench & Sons, owners of a large tannery. In this letter Mr. Oakes said:

"At this writing I do not know that any good has been accomplished, but I have done all I could in the short time at my disposal and have demonstrated to my own satisfaction that after a suitable educational campaign the intelligent voters of the State of New York will consent to any reasonable appropriation for canal improvement, especially on the line of a barge canal idea."

Mr. Oakes attended several commerce and canal conventions and spoke and wrote extensively on the subject. He has been an aggressive canal advocate for many years and his work in Cattaraugus county, which was strongly anti-canal, was shown in the results where there were cast 2,239 votes in favor of the measure to 7,391 votes against it.

In Franklin county were such well-known canal advocates as A. S. Matthews of Fort Covington; Hon. John I. Gilbert, John P. Kellas, F. S. Stumberge, O. S. Lawrence, H. T. Dudley, Frank S. Channell, and Fred G. Paddock, all of Malone; Paul Smith, at one time the owner of a packet on the Champlain canal; Jackson Harding, Thomas W. Cantwell, Daniel S. Coonley and Bruce C. Bort of Chateaugay.

In Broome county, there were such prominent men as Senator George E. Green, who conducted a canal campaign very largely at his own expense and was one of the principal speakers at the canal meeting held at the court house in Binghamton on October 30, 1903, which was addressed by John D. Kernan of Utica and by myself. About fifty of the leading business firms of that city formed a pro-canal league, and united in an appeal to the voters of Broome county to support the canal referendum measure.

The pro-canal committee of the city of Binghamton comprised, among others, Messrs. E. P. McKinney, Henry G. Jackson, John Hull, jr., George Fowler, James K. Maus, C. I. Maguire, W. H. Smith, W. A. Turner, P. F. Costello, John L. Irving, E. H. Stow, C. E. Hait, I. W. Bean, Alonzo Roberson, Benjamin B. McFadden, G. S. North, A. S. Miner, G. R. Colvin, Wm. Casey, E. K. Hanley, Allan M. North, E. B. Cline, Frank Fisher, George E. Green, and I. I. Goldsmith.

In that county the local leaders of both political parties were active in their opposition to the canal referendum measure, so that the vote of 2,401 in favor to 11,696 in opposition was all that could be expected from a county wherein nearly every paper opposed, and all railroad and political influences were exerted in opposition to the approval of the measure.

The credit for the canal vote in Broome county was chiefly due to the loyalty and efforts of Senator Green, in behalf of the measure. He had served with marked ability on the Roosevelt Commission that recommended the thousand-ton barge canal improvement.

The strong anti-canal sentiment in the city of Rochester did not represent its entire citizenship. The labor organizations of that city were quite generally in favor of the proposed improvement. Hon. George W. Aldrich, former Superintendent of Public Works, while not advocating canal enlargement, did not declare against it. When it was definitely decided that a ship canal was not to be built from Lake Ontario to the Hudson, and the only proposition to be decided was whether or not the barge canal should be authorized, J. Y. McClintock, one of the principal engineers of that city, assumed a friendly attitude toward the measure. Mayor Hiram H. Edgerton, John A. C. Wright, Peter Bohrer, Michael J. O'Brien, Willard A. Marakle, Hon. George L. Meade, George Dietrich, and others were converts to the proposition. Latterly, E. G. Miner, president, and other officials of the Rochester Chamber of Commerce, have extended a formal invitation to the New York State Waterways Association to hold its next meeting in the Chamber of Commerce building of that city. Some of its officials have expressed their acquiescence in the decision on the referendum measure and hereafter purpose to coöperate with, rather than oppose, advocates of canal and waterway improvement in this State. Few if any cities in the interior of the State are in greater need of cheap water transportation, and its people are beginning to realize this fact. With its extensive manufacturing and industrial interests, Rochester is quite as dependent on low freight rates as any other city of the State, and at one period its leading citizens were strong pro-canal advocates. The return to this attitude evidences a change of public sentiment in that city which for a decade or more was classed as the strongest anti-canal community in the State. Sentiment in other localities is undergoing similar change and many anti-canal sections of the State are becoming pro-canal centers with the general revival of interest in water transportation.

During the campaign Assemblyman Robert Lynn Cox of Buffalo, and former Assemblyman Edward R. O'Malley of Buffalo, were among the active canal speakers. Their familiarity with the subject enabled them to make telling

points in its favor, and their services were frequently called for during the latter part of the campaign. Both of these men had been identified in the Legislature with many of the questions involved in formulating and passing canal measures and won for themselves and the second assembly district of Erie county well deserved recognition among canal advocates throughout the State.

In Genesee county Judge Safford E. North and others of Batavia were outspoken in their advocacy of the measure. The vote in that county was 1,446 for it and 3,680 against it. In Niagara county the vote was 8,514 for it and 4,014 against it. The large and growing commerce of the upper Niagara river will be vastly augmented when the Federal ship canal, now nearing completion, enables large lake vessels to descend from Lake Erie to the Tonawandas. Niagara river is also a favorite for pleasure craft and motor boating as seen in the cases of the Buffalo Launch Club, the Motor Boat Club, the Frontier Boat Club and others using its waters.

In Western New York a Canal Enlargement Association was formed and placed under the direction of the Hon. George Clinton, Leonard Dodge, F. Howard Mason and Howard J. Smith. In the eastern end of the State the Canal Enlargement Association of Greater New York was under the direction of Gustav H. Schwab, who was succeeded in October by Hon. Charles A. Schieren, Henry B. Hebert and George H. Raymond.

These two organizations sent forth speakers and thousands of pamphlets to various parts of the State, and were largely instrumental in supplying the voters with the literature necessary to enable them to vote intelligently on the referendum measure. These two associations were particularly successful in conducting an intelligent and vigorous campaign. It is very doubtful whether or not the results would have been as gratifying had there been less activity on the part of those identified with these associations.

A large meeting was held under the auspices of the Chamber of Commerce of Troy in that city on October 27, 1903, addressed by Hon. William J. Roche, who had taken

deep interest in canal improvement in the Constitutional Convention debates of 1894, and on various occasions thereafter. In the course of his address he said:

"One objection is that we should not favor a 1,000-ton barge canal, but should look for something larger; that we should have a ship canal, the expense to be borne by the United States Government. This project is very alluring. It appeals to the imagination. But we are asked to abandon an enterprise, which would contribute enormously to the wealth and growth of the State, for a remote possibility. What is the prospect of securing a ship canal? We cannot get such a canal unless a majority in Congress vote in its favor. Some say it would cost \$300,000,000, and none less than \$200,000,000. Away back in the '50's an agitation was begun for a canal across the isthmus, and we have not got it yet. A bill was passed by the last Congress for a canal across the Isthmus of Panama. It was fought for years by powerful interests which influence representatives from every section of the country. If such difficulties lay in the way of the Panama canal, how much greater would they be in the way of a ship canal within the confines of New York State? The influence of New Orleans, Savannah, Newport News, Baltimore, Philadelphia, Boston and Portland would be arrayed against it. It is improbable that it would command any support to speak of, except from New York State and the immediate Northwest. That would be but a minority. We cannot have a ship canal without utilizing Lake Ontario, which is English as well as American waters. If war should arise, the ship canal would be useless. . . .

"Some ask, Why should we help the people of Buffalo and New York by voting for the enlargement of the canal? Even if the matter is placed upon so narrow a ground, I ask, is it not worth our while to help New York and Buffalo? Anything that helps these two great communities helps all the rest of the State. When the farmers ask that money be expended for good roads, is any voice raised in New York or Buffalo against it? The benefits of the barge canal will be felt by nearly all industries throughout the State. Our Republican friends, during the tariff agitation, appealed to the farmers and it was represented to them that while they might not get direct protection, the manufacturing communities did receive such protection and it was claimed that by adding to the wealth and prosperity of the cities there would be a better market for what was raised on the farms. That argument applies equally well to the betterment of the canals. . . .

"Professor Raymond—of Troy Polytechnic Institute—says that the State has no moral right to build a canal to compete with a railroad company to which a franchise has been given. The canal was there before the railroad. The State, in its sovereign capacity, can provide for the instrumentalities and needs of the public welfare and comfort. The people of the State have a right to build a competing bridge across the Hudson from the foot of Washington Street to Watervliet, though they have given the Congress Street Bridge Company a franchise to maintain a bridge within one-third of a mile and may tax the corporation in control of the latter to help pay for the former. . . .

"The construction of the Erie canal made this the Empire State; its enlargement will materially aid us in preserving that proud title. The topography of our State invited the construction of this great waterway, and admits of its maintenance upon a scale of greater magnitude and usefulness. We owe it to ourselves, to our traditions as a State, to the growth and good name of this magnificent Commonwealth, to place the great works which our forefathers with such courage and prophetic foresight devised, on a permanent basis, that they may continue to be, on an ever-increasing scale, powerful agents in promoting the happiness, the prosperity and the civilization of the people of this country."

In an historical review such as this it is possible to recount the efforts of but a few of the hundreds of citizens who had some part in the campaign that waged from May to November, 1903.¹ The popular conception of national political campaigns is such as to dwarf the proportions of a campaign of the economic importance of the canal campaign. The masses of the people have been educated to look upon political campaigns as the important events in our political history and they do not give that consideration to referendum measures submitted under the Constitution of this State that their importance deserves. The latter involved the question of the expenditure of large sums of money in public improvements and, whether they be highway or waterway improvements, is a matter of indifference to many who consider neither as paramount to political

1. In the canal papers of Gustav H. Schwab, Henry B. Hebert, Frank S. Gardner and others, that follow in the succeeding volume of this series, appear important phases of the barge canal campaign and the names of other citizens identified with the project.

issues. When public improvements, however, are considered in the light of their importance in the development of a great State, whose commerce for a hundred years has been as great as that of New York and is still capable of expansion in volume and variety, provided the facilities keep pace with the demands for cheap transportation, it will be seen that a popular campaign with such an economic proposition under consideration may be far more important to the people affected than a political campaign howsoever momentous.

Those familiar with the canal campaign in this State in 1903, and the consideration that had been given to the matter for nearly a quarter of a century, and who realized what it meant to the commerce of New York and the industrial development of the State, fully appreciated that upon the results of the pending election rested to some extent the future prosperity of the State.

In Schoharie county there were such well-known citizens in support of the canal measure as Hon. Charles A. Weiting, State Commissioner of Agriculture; William Riley, William Keating, Frank Mix, Henry Brandow and others. Mr. Weiting took a great deal of interest in the project. Meetings were held at Cobleskill, for which he was instrumental in securing speakers and a full discussion of the problems involved in that county, which was naturally strongly anti-canal, being an inland county, not touching the canals. The meetings were well attended and much interest shown, but the vote was only 836 for the measure to 5,476 against it.

In Tompkins county the *Ithaca Daily News*, under the editorial supervision of D. C. Lee, dealt heavy blows upon the rural opposition of the interior counties. The Scriba Grange was pro-canal and was unsparingly denounced by its State organization for its independence of official domination in that matter. Joint debates were held between Hon. John I. Platt and George H. Raymond in Albany, Utica, Syracuse and at Conesus. Governor Odell delivered an address at the latter place and the canal debate took place in the presence of several thousand people.

Among other active canal advocates were Danforth E.

Ainsworth of Oswego and Louis Bedell of Orange county, both efficient workers.

Captain Charles Campbell of New York traveled through the State delivering an illustrated lecture on the benefits of water transportation, and the importance of adequate terminal facilities and the improved waterways to hold the commerce of the State. He engaged, with others, in the "cart-tail campaign" in New York City during the month of October, which attracted some attention on the streets and was—it may be presumed—productive of results favorable to the large vote cast in that municipality.

The New York Canal Enlargement Association sent into the field John D. D. Trenor and other speakers, and employed Mr. John Stewart to edit the "Canal Primer," which was in general use during the campaign. In a communication addressed to the editor of the *Evening Post*, by Mr. Trenor, under date of October 14, 1902, after reciting the history of the growth of the State as well as its commercial development, and after quoting from Governor Black and others and giving statistics to show the growth in population by decades as compared with the growth of Pennsylvania, and the loss in commerce, it is stated:

"The elimination of the canal as a regulator of freight rates has made possible the establishment of the discriminating rates of the railroads, and they now practically dominate domestic and foreign traffic tributary to this State and city. This accounts in a large measure for the decline of commerce that is taking place, and is the reason why the commercial organizations of the State are coöperating for the rehabilitation of the canal system by means of which the Empire State may regain the power to regulate freight rates, and make it possible for it to receive the proper proportion of the increase of the nation's commerce, which is so justly its due."

The annual reports of the Buffalo Chamber of Commerce and of the Board of Trade contain the names of many Buffalonians who have been actively identified with canal affairs for the last quarter of a century. Alfred Haines, Theodore S. Fassett, R. R. Hefford, George Clinton, Charles Hallam Keep, secretary of the Board of Trade, and F. Howard Mason, secretary of the Chamber of Commerce, had frequently represented those organizations before legis-

lative and other bodies, and all but Mr. Keep—who became assistant to the Secretary of the Treasury of the United States—were among the active canal improvement advocates.

Several Buffalonians have been officially identified with the administration of canal affairs in this State. Among them were Grover Cleveland, as governor from 1880 to 1883; William Dorsheimer and William F. Sheehan, as lieutenant-governors; Millard Fillmore, Asher P. Nichols, Nelson K. Hopkins, James A. Roberts, William J. Morgan, and Erastus C. Knight as State comptrollers; and Benjamin Welch, Jr., Elbridge G. Spaulding, Isaac V. Vanderpool, Philip Dorsheimer, John G. Wickser and John G. Wallenmeir as State treasurers; George P. Parker, Charles F. Tabor, John Cunneen, William S. Jackson and Edward R. O'Malley as attorney generals.

In addition to these there were Daniel H. McMillan, Henry W. Hill, Tracy C. Becker, John Coleman, George A. Davis, Jonathan W. Carter, Philip W. Springweiler, William Turner, James S. Porter, Harvey W. Putnam and Thomas A. Sullivan, members of the Constitutional Convention from Erie county in 1894, who were largely instrumental in securing the passage of the constitutional amendment known as section ten of article seven, expressly authorizing canal improvement in such manner as the Legislature might provide.

William A. Rogers, Spencer Kellogg, Edward Smith, Edward Delahunt, John S. Heath, Orville A. Crandall, Hon. William Richardson, John O'Brian (Assemblyman in 1872), Edwin T. Evans, John J. McWilliams, Charles W. Goodyear, and Representatives Charles Daniels, Rowland B. Mahany, Daniel N. Lockwood, William H. Ryan and Col. D. S. Alexander—acting chairman of the Rivers and Harbors committee, who has secured large appropriations for improvements in Black Rock harbor and Buffalo river,—and many other Buffalonians have from time to time shown their interest in commercial affairs, and have contributed to the strong pro-canal sentiment in Buffalo, which for a quarter of a century has largely shaped the canal policy of the

State. Some of these have already been mentioned in this work. It is a well-known fact that the vote in Erie county on the referendum measure was 39,451 votes for it, to 8,355 votes against it, notwithstanding the large railroad interests centering in Buffalo, opposed to the measure when it was submitted to the people. This large preponderating vote clearly shows the strong canal sentiment in this city.

In each of the counties of Schuyler, Yates, Hamilton and Tioga there were cast less than 500 votes in favor of the measure, but in most of the non-canal counties of the State meetings were held at which speakers appeared in advocacy of the measure, and in some instances to engage in joint debate with those opposed to it. In several of these the pro-canal vote appears but a small proportion of the entire vote cast, but when it is remembered that the sentiment in the rural counties was strongly anti-canal in character, it may be seen that the results were quite as assuring as could reasonably be expected.

Albany, Cayuga, Erie, Kings, New York, Queens, Niagara, Richmond, Rockland, Suffolk, Ulster and Westchester counties cast large majority votes in favor of the measure, and all the other counties a majority against it. The aggregate affirmative vote was 673,010, and the negative vote was 427,693, which gave a clear majority of 245,323 votes for the measure. It required no end of oral and printed statements to reach the 1,258,777 voters, the aggregate number of those who voted for or against it, or who failed to vote by reason of defective ballots. The referendum measure received 43,622 votes over and above one-half of all votes cast, or that might have been cast for or against the proposition at that election. The preparation and dissemination of canal literature, and the traveling and other expenses of speakers, all together involved a large expenditure of money, which was raised by voluntary contribution from private individuals. All this was additional to the time and effort involved in the preparation and presentation of speeches, the dissemination of canal literature, and the organization and management of the campaign during the six months preceding the vote on the referendum measure.

XXVII. MEN AND MEASURES—PROGRESS AND PROSPECTS.

The well-considered policy formulated at the time of the drafting of the referendum measure was fully carried out, and a trend of favoring events largely dominated by that policy helped to bring about the ultimate success achieved. Many different interests for a long time coöperated to accomplish this result.

Engineers of repute and long service had been identified with the waterways of this State from the time of the improvement of 1835 down to that of the barge canal. Mr. George E. Gray entered the service in 1839, nearly 70 years ago; Mr. David E. Whitford had been in the service for a period of 52 years, with the exception of four years, and is still in the service; Mr. W. H. H. Gear had been in the service of the State at different times for 50 years; Messrs. Maurice S. Kimball and John Bisgood had been in the service of the State nearly 40 years; Mr. L. L. Nicholls, 30 years; Messrs. O. W. Childs, O. W. Storey, Daniel C. Jenne, Van R. Richmond, Bruce J. Kimball and J. Nelson Tubbs, 25 years; Messrs. Alfred Barrett, J. Platt Goodsell, Thomas Goodsell, Daniel Richmond, Dennison Richmond, George Arnoldt and Thomas Evershed, for a period of 20 years, and Mr. Holmes Hutchinson, William J. McAlpine, O. A. Bogardus, Wm. B. Taylor, Howard Soule, Walter W. Jerome, Charles Truesdell, Wm. B. Cooper, Byron Holley, Charles D. Burns, and John R. Kaley, upwards of 15 years.

In addition to those mentioned were such well-known engineers as Benjamin Wright, James Geddes, Canvass White, John B. Jarvis, Nathan S. Roberts and David S. Bates, who were the chief engineers who built the original Erie canal. Next came a group of engineers who wrought out the several enlargements and improvement down to the present project for the barge canal. Among these already mentioned were Messrs. Bisgood, Cooper, Evershed, Gear, Goodsell, Jenne, Jerome, Kaley, Kimball, McAlpine, Nicholls, Richmond, Soule, Storey, Taylor, Tubbs and

Whitford. To this list may be added Squire Whipple, John D. Fay, Byron M. Hanks, Silas Seymour, Sylvanus H. Sweet and John Bogart.

For several years before the scheme for a barge canal had been perfected, the subject of better conditions was being agitated and various improvements were undertaken more or less successfully. Among those who were instrumental in bringing about these improvements was Horatio Seymour, jr., who made a careful study of transportation problems and advocated a deepening of the canals one foot, in his report of 1878, which was thereafter known as the "Seymour plan." Many years after the deepening was actually begun under the modification suggested by Campbell W. Adams, known as the "Seymour-Adams plan."

We have already seen the services rendered by Martin Schenck in the plan of canal development in this State, as well as the surveys made under Edward A. Bond in 1900. Mr. Bond's successor was Henry A. Van Alstyne, who rose from a subordinate position to the head of the department and was entrusted as State Engineer and Surveyor with formulating the first working plans for the barge canal. He was succeeded by Frederick Skene, who had charge of the work from 1907 to 1909, and who in turn was succeeded by Frank M. Williams.

The division engineers appointed by the State Engineer and Surveyor, Frank M. Williams, were the following: On the eastern division, George T. Williams; on the middle division, Guy Moulton; on the western division, Thomas W. Barrally; and the deputy in charge of barge canal construction is William B. Landreth, who was employed in making the survey for the barge canal, and has since been associated with the Advisory Board of Consulting Engineers. Noble E. Whitford has long been identified with the department, and is the author of the valuable "History of the New York Canals," issued as part of the official report of the State Engineer for 1905. The bureau of canal affairs in the State Comptroller's office for several years has been under the supervision of William G. Shaible and Thomas W. Cantwell.

On December 21, 1903, a canal dinner was tendered by the Chamber of Commerce of Buffalo to Governor Odell and other gentlemen who had taken a prominent part in the canal campaign. President Leonard Dodge of the Chamber of Commerce, congratulated the gentlemen present on the successful issue of the canal campaign, and called upon W. Caryl Ely to preside. After an allusion to some of the phases of canal improvement, Mr. Ely introduced Governor Odell, who made a long, interesting speech on the utility and advantages of cheap water transportation as conducive to commercial expansion. He was followed by Attorney General John Cunneen, who gave a history of the campaign for canal improvement in this State, paying merited tribute to Alfred Haines, who had been actively engaged in the canal campaign, but had shortly before died.¹ Messrs. Ogden P. Letchworth, John G. Milburn and Senator Thomas F. Grady of New York were also among the speakers on that occasion. Senator Grady was in his usual felicitous mood, and the recipient of many congratulations for his active and efficient part in the canal campaign in and out of the Senate. This was one of the largest canal banquets ever held in Buffalo, and was attended by many of its leading citizens. The impression given to those in attendance, including the Governor and other distinguished guests, was that the citizens of Buffalo looked forward to definite action in the line of canal enlargement on the part of those charged with the responsibility of issuing the bonds and proceeding with the work, now that all preliminary problems had been favorably solved.

Shortly after the organization of the Canal Board of 1904, State Comptroller Otto Kelsey presented the matter of a bond issue in conformity with the provisions of chapter 147 of the laws of 1903, and was directed to proceed with the preparation of the two forms of bonds authorized by that statute. In due time they were prepared; and subsequently, in place of the eighteen-year bonds, there were authorized and issued three per cent. canal bonds, running

1. Died Dec. 17, 1903.

for a period of fifty years, which have been disposed of to the amount of several millions of dollars. Mr. Kelsey, who thoroughly understood the difficulty of disposing of three per cent. State canal bonds under the market conditions existing in 1907, advised the enactment of a bill which I introduced to facilitate the sale of State bonds. As State Comptroller he had supervision of both the eighteen and fifty-year original bond issue.

The general interest manifested in the subject of adequate canal improvement in the State is shown by the variety of organizations and interests which from time to time cooperated in the consideration of plans proposed by engineers and others identified with the movement. The commercial centers of the State were quite generally pro-canal, while most of the rural counties were anti-canal. It is doubtful whether or not any great public question was ever more widely discussed and more carefully considered by the great mass of voters than the canal referendum issue of 1903. As has been stated, more than a million votes were cast on the proposition, of which 673,010 were in approval, and 427,698 were against it, thus giving it a fair majority of upwards of 245,000 votes. That was the largest popular majority ever given to any referendum measure submitted to the people in this State. It was gratifying to the great commercial centers, as well as to the thousands of broad-minded citizens who had had any part in the campaign contributing to that result. The measure as passed, in addition to the features already mentioned, provided that the Governor may employ, at a compensation to be fixed by him, five expert civil engineers to act as an advisory board of consulting engineers, whose duty it shall be to advise the State Engineer and Superintendent of Public Works, and follow the progress of the work, and from time to time report thereon to the Governor, the State Engineer and the Superintendent of Public Works, as they may require, or as the board may deem proper and advisable. That provision was inserted in the bill by reason of the provisions of the State Constitution requiring all public works to be placed under the supervision of the State Super-

intendent of Public Works, and the State Engineer and Surveyor prohibited the creation of a commission to have charge of such matters. Therefore to supply the expert engineering skill necessary for the proper conduct of a work of that magnitude, it was thought wise by the framers of the referendum measure to incorporate a provision therein for the creation of a board of five expert engineers to be appointed by the Governor, and to serve during the progress of the work.

The Advisory Board of Consulting Engineers first appointed were Hon. Edward A. Bond, a member of the American Society of Civil Engineers, who was first employed in engineering in the construction of the Delaware, Lackawanna & Western Railroad, afterward of the Utica & Black River Railroad, and later general superintendent of the Carthage & Adirondack Railroad; and who was State Engineer and Surveyor of New York from 1900 to 1904, when he resigned to accept appointment as a member of the Advisory Board of Consulting Engineers. He was in charge of the survey for the barge canal in 1900.

The second member of the Advisory Board was Alfred Brooks Fry, a graduate in engineering at Columbia University, who was employed in the United States Navy as acting chief engineer in Cuban waters during the Spanish-American war, a member of the American Society of Mechanical Engineers, who had had extensive experience in engineering on various governmental and State projects.

The third member was Major Thomas W. Symons of the Corps of Engineers of the United States Army, a graduate of West Point Military Academy, and one of the engineers employed by the United States Deep Waterways Commission in making its survey across the State of New York, from 1897 to 1900, and thereafter employed by Edward A. Bond in making the survey for the barge canal.

The fourth member was William A. Brackenridge, employed in the construction of the elevated railway system of New York City and in the construction of the western division of the Delaware, Lackawanna & Western Railroad, and also in the construction of the Brooklyn elevated rail-

way and the Long Island Railroad. He traveled extensively in Europe studying engineering problems in England and on the Continent. He was employed from 1891 to 1904 by the Niagara Falls Power Company in the construction of the power plants at Niagara Falls.

The fifth member was Ehmer Lawrence Corthell, a graduate of Brown University, and chief engineer in the construction of the bridges over the Mississippi river, and also in the construction of the Mississippi jetties. He was chairman of the commission of the International Engineering Congress in Chicago in 1893, a delegate to the International Navigation Congress at Brussels in 1898, and to the International Navigation Congress held at Düsseldorf in 1902. He was the author of the articles on "Jetties, Levees, Ship Canals and Ship Railways" in Johnson's Encyclopedia.

The first meeting of the board was held at Albany on March 8, 1904.

Upon the resignation of Mr. Corthell in 1907, Mortimer G. Barnes was appointed to fill the vacancy. A graduate of the University of Michigan in engineering, he was employed in the construction of the Poe Lock and power house at Sault Ste. Marie, and was chief engineer of the Lake Superior Power Company. In 1897 he was on the preliminary survey for the Birmingham (Ala.) canal, and was the hydraulic engineer of the Chandler Dunbar Power Company. He was one of the engineers engaged in the United States Deep Waterway survey in Northern New York. He was also employed in the construction of the Illinois and Mississippi canal in 1905, and was United States assistant engineer in charge of the designing and construction of the lock in the Mississippi river at Moline, and also one of the assistants in designing the locks, dams and regulating works for the Panama canal.

All of these men are distinguished engineers, some of whom had an active part in the various surveys theretofore made in this State. This was regarded at the time, and has since proved one of the most salutary provisions of the referendum measure, in that it affords the people an opportunity to obtain at first hand expert information of a high

character as to the progress of the work under the large contracts that are being let from time to time, and the advisability of the letting of contracts on bids received. The Advisory Board of Consulting Engineers holds regular sessions and keeps a record of its proceedings, which are made public documents and contain much information as to the engineering and other momentous questions arising as to dam and lock construction, and other problems involved in the prosecution of the work.

The referendum measure has been modified from time to time; and finally, by an amendment proposed by myself, so that all maps, plans, specifications, and detail estimates, and all alterations and changes in such maps, plans, specifications and detail estimates are required to be submitted by the State Engineer to the Advisory Board of Consulting Engineers before being presented to the Canal Board for its action, and the Advisory Board of Consulting Engineers is required to report its opinion thereon within thirty days after it shall have received the same. The Canal Board shall not act upon any such maps, plans, specifications or estimates, or on any alterations or changes thereon until the same have been so submitted to the Advisory Board of Consulting Engineers and reported upon by it, or until the time for such board to report shall have expired.¹

The increased powers conferred upon the Advisory Board of Consulting Engineers by the last amendment, gave that board a standing and efficiency which it did not possess under the original canal act. By virtue of the amendment, it is mandatory upon the State Engineer to submit all preliminary work of the department to the scrutiny and revision of these expert engineers, familiar with all phases of the work involved in barge canal construction. The State has been particularly fortunate in securing the services of these gentlemen. Their official reports show something of the scope and importance of the duties devolving upon them and the magnitude of the questions to be decided.

The functions of the Advisory Board of Consulting Engineers, under the amendatory act, are co-extensive with

1. Chap. 394, N. Y. Laws of 1907.

the scope of barge canal construction. This board has on many occasions proved itself to be a most valuable adjunct to the State Departments charged with the duty of carrying forward barge canal construction.

As the work progressed, the Advisory Board recommended a modification of the dimensions of the locks contemplated by the original act, so that they would be 45 feet in width instead of 28 feet, and admit of the passage of vessels carrying fifteen hundred tons instead of one thousand tons. This plan was adopted, and the locks on the three barge canals are 328 feet long, 45 feet in width, with 11 feet of water over the mitre-sills. In the course of construction some of the locks are of still larger dimensions and are built according to the most modern methods utilized in this or any other country in canal construction. The great lock at Oswego is to be operated by water power siphoned into a chamber.

Some of the difficult engineering questions encountered are those in the canalization of the Mohawk from Rexford Flats to Little Falls, a distance of 58 miles, involving the construction of retaining reservoirs to hold back the waters, and dams and locks strong enough to withstand the torrential conditions of that river in spring time when the whole Mohawk valley is flooded.

A large amount of water will be needed for operating the barge canal. The locality which requires the greatest attention is the summit level near Rome. In addition to the present supply to the existing Rome summit level, including the series of reservoirs, lakes and streams to the south, in Oneida, Madison and Onondaga counties, which will be brought to the new canal by retaining the present canal as a feeder, and also the lakes in the Adirondack region, there will be built two large reservoirs, one upon the Mohawk river at Delta, about five miles north of Rome, and the other on West Canada creek at Hinckley. The capacity of the Delta reservoir will be 2,700,000,000 cubic feet and the watershed will contain 137 square miles. At Hinckley the drainage basin is 372 square miles and the capacity of the reservoir 3,400,000,000 cubic feet. The water of West

Canada creek reaches the line of the canal at Herkimer, but inasmuch as a supply will be needed for the summit level to the west of this point, a channel will be constructed to divert the flow into Nine Mile creek.

There will be a continuous drop in the canal from Lake Erie to Three River Point and for this portion of the canal no special provision for water-supply other than Lake Erie will have to be made.

The referendum measure has been amended in several respects since its passage and some of the amendatory acts are the following:

In 1906 I introduced in the Senate a bill to amend the bonding features of the referendum measure to conform to the provisions of section 4 of article 7 of the Constitution, authorizing a fifty year bond issue in lieu of an eighteen year bond issue as prescribed by that section of the Constitution before it was amended and as it existed at the time of the enactment of chapter 147 of the laws of 1903. After some discussion this Senate bill, which was prepared in conference with Hon. Abel E. Blackmar and Hon. George Clinton, passed the Legislature and was approved by Governor Higgins, and became chapter 302 of the laws of 1906.

On February 26, 1906, the Ithaca Business Men's Association gave a banquet in Masonic Hall at Ithaca, which was attended by all the business men of the town, and many of the professors of Cornell University, and mayors and prominent citizens from surrounding towns, in all numbering 248, the largest meeting of the kind ever held under the auspices of that Association. It was presided over by Professor T. F. Crane, Dean of Cornell University. Addresses were made by Justice Alfred Spring, on "Present Problems"; by the Rev. W. Herbert Hutchinson, on the "Ethics of Propriety"; on "Municipal Government" by former Mayor Thomas M. Osborne; and by David M. Dean, a prominent member of the Tompkins county bar, on "Ithaca." One of the purposes of the banquet was to consider the feasibility of constructing a waterway from the barge canal to Cayuga and Seneca lakes, and I was invited to speak on that subject. In the course of my remarks I said:

"New York's internal waterways have contributed much to the advancement of commerce in this State. New York's history has been unparalleled in commerce, manufactures, and in the development of the liberal arts. The founders of its commercial policy were far-seeing, broad-gauged and liberal-minded statesmen. They believed that facility and economy in transporting agricultural, mineral and manufactured products were of prime importance in the development of a State. They realized that a saving in freight rates was a gain both to the producer and consumer, and made it possible for industries to thrive and flourish where these conditions existed."

I called attention to the industries in the vicinity of Ithaca which would be benefited by the construction of a canal from Cayuga lake, connecting with the barge canal, and said that "the saving in freights to the salt industries in and about Cayuga lake would warrant the expenditure of the money necessary to construct such intercepting waterway." I also said that the interior counties were rightfully entitled to the same benefits as the counties along the line of the Erie canal and to such improvement as would enable them to intercommunicate therewith, and secure the advantages of cheap water transportation for their products and supplies. Before the conclusion of the banquet, upon motion of Jared T. Newman, the following resolution was adopted:

"Resolved, By the 248 business men assembled at the annual banquet of the Business Men's Association of the city of Ithaca, that we approve of a bill introduced by Senator Henry W. Hill, for the furtherance of the construction of the barge canal, and request our representatives in the Legislature to give it their hearty support."

The resolution was unanimously adopted. From that time on the Cayuga lake counties generally and in some instances enthusiastically endorsed and supported all canal measures in the Legislature. As a result of the friendly attitude of the people in those counties toward canal improvement a conference was held at the office of the Superintendent of Public Works in Albany, January 6, 1909, attended by canal advocates from various parts of the State, to consider the advisability of the introduction of a referendum measure authorizing a bond issue for the construction

of a barge canal from the main line of the Erie barge canal to the outlets of Cayuga and Seneca lakes. That measure is now ¹ being prepared and will undoubtedly pass the Legislature at the present session. We have heretofore seen the extent of the commerce over the original Cayuga and Seneca canals, and the reconstruction of a great waterway between the main line of the Erie barge canal and those lakes will undoubtedly restore much of the commerce naturally tributary thereto, which for the last quarter of a century has been largely diverted to the railroads. The banquet of the Ithaca Business Men's Association was opportune and was the beginning of a change of sentiment in Tompkins county, which cast 5,498 votes against the referendum measure to 720 in favor of it in 1903.

The Superintendent of Public Works in his official report for 1909 recommended the improvement of the outlet of Cayuga and Seneca lakes, by the construction of a waterway of the barge canal capacity, to connect these lakes with the new Erie barge canal, at an estimated expense of \$5,750,000.²

At each session of the Legislature, since the passage of the referendum measure, various bills have been introduced; some for the avowed purpose of checking the progress of the work, and others for the declared purpose of repealing the referendum measure, which is possible under the Constitution. These measures, however, have met with the opposition of the commercial centers, which has been such hitherto as to prevent their passage through both branches of the Legislature. There has been some change in sentiment, however, in the State since the approval of the referendum measure in 1903, and such counties as some of those bordering on Seneca and Cayuga lakes, as well as some of those in touch with the Black River canal, are now pro-canal counties. The sentiment is also changing in some of the counties along the Hudson river and in central New York; and gradually the people are coming to realize that railroads, however well equipped, are inadequate to transport

1. Feb., 1909.

2. See Report of Supt. of Public Works for 1909, pp. 29, 30.

the vast tonnage produced in and transported through this State, and that waterways in the near future will be an absolute necessity as a means of transportation in the commercial and industrial development of the State. The necessity for increased transportation facilities is generally recognized by those familiar with transportation matters, and also that railroads have nearly reached their maximum capacity as freight distributors. The action of New York on the referendum measure was the beginning of renewed interest in transportation by water in this country. "As the Erie canal of old blazed the way for inland waterways in America, inspiring a veritable mania for canal building throughout the country, so again, if present indications show the trend of public sentiment, the new Erie seems destined to lead in another popular wave of zeal for modern waterway channels."¹

In 1907 I introduced a bill which resulted in the enactment of chapter 550 of the laws of 1907. That bill was prepared owing to the stringency in the money market rendering it impossible to dispose of three per cent. canal bonds. The provisions of that bill affected insurance companies, trust companies and savings banks by providing a rebate of one per cent. on the franchise tax paid by such institutions to the State, to the extent of their holdings of New York three per cent. bonds, but not exceeding, however, the amount of tax paid by them in a year to the State. This was considered a wise financial measure, to induce those institutions to purchase New York three per cent. canal bonds, which were at that time unmarketable, inasmuch as the money market demanded a much higher rate of interest. The measure was strongly opposed in the Senate and passed that body after a long fight, and it was also strenuously opposed in the Assembly by Assemblyman James T. Rodgers of Broome county, and others, but ably supported by Assemblymen John Lord O'Brian, Orson J. Weimert and John K. Patten, chairman of the Assembly Canal committee, all from Erie county, and active canal advocates; and by Assemblymen Edward Schoeneck of

1. See N. Y. Barge Canal Bulletin, Dec., 1908, p. 354.

Syracuse, and Willoughby B. Dobbs of New York City, who made a forceful speech in defense of the measure. It passed the Assembly and was approved by Governor Hughes. Since its approval the State (to February 1, 1909) has disposed of its three per cent. canal bonds to the extent of thirteen millions of dollars.

The members of the legislative committees for 1909 to which amendatory or other canal bills relating to barge canal construction are referred, are the following: In the Senate, Victor M. Allen, Seth G. Heacock, Henry W. Hill, Eugene M. Travis, J. Mayhew Wainwright, Charles J. White, James P. Mackenzie, Samuel J. Ramsperger, and Stephen J. Stilwell; and in the Assembly, William W. Colne, T. Romeyn Staley, Clarence MacGregor, John J. McInerney, Lindon Bates, jr., Frank L. Smith, Alexander C. Martin, Charles L. Fellows, Albert S. Callan, Edward P. Costello, Owen Bohan, John W. Manley, and Thomas A. Brennan.

Another act was passed which became chapter 710 of the laws of 1907, and in 1908 still another act was passed and became chapter 508 of the laws of 1908, amending section 3 of the original canal referendum measure.

Other amendatory acts have been passed at various times, such as chapter 365, laws of 1906; chapter 494 of the laws of 1907; chapter 195, laws of 1908, and chapter 550, laws of 1907, which together with the original act and the amended constitutional provisions constitute a code of laws authorizing and governing barge canal construction in this State.

Among constitutional amendments submitted to the people by the convention of 1894 was that known as the forestry amendment, proposed by the Hon. David McClure of New York City, which became section 7 of article 7 of the Constitution, and provides that "the lands of the State now owned or hereafter acquired constituting the Forest Preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged or be taken by any corporation, public or private, nor shall the timber thereon be removed or destroyed."

The Court of Appeals, in the case of the People versus the Adirondack Railroad Co.,¹ state that "the creation of the park is a part of the permanent policy of the State." That provision of the Constitution was drafted by Frank S. Gardner and recommended by the New York Board of Trade and Transportation and other bodies interested in the preservation of the State forests, which would not only conserve the forest interests of the State, but provide a watershed large enough to supply a portion of the waters for the State canals, and possibly for some of the municipalities of the State. At the time of the adoption of the constitutional amendment the extraordinary demand for waters sufficient to supply the barge canals was not foreseen. Since the adoption of the amendment the State has gradually extended its holdings in forest lands and now owns approximately 1,500,626 acres in the Adirondacks and 111,191 acres in the Catskills. The Adirondack Forest Preserve is large enough to supply the Erie canal from the Rome level east and west, and also the Champlain canal and the upper Hudson, and large storage reservoirs are being constructed for that purpose within reasonable proximity of the point in the line of the barge canal where the largest quantity of water is necessary; therefore, provision has been made in the acquisition of the immense tracts of wild lands in the Adirondacks for the accumulation of such waters. The State is, therefore, possessed, through the forethought of the advocates of the forest amendment of 1894, of the indispensable means of making the barge canal possible, for without that supply of water a canal of the capacity of the barge canal could not be successfully operated.

Hon. Frank S. Gardner has steadfastly urged the extension of the Forest Preserve, and in 1907 drafted a bill, which became law, creating a commission looking toward the conservation of the water powers of the State. That commission has been investigating that subject for two years.

1. 160 N. Y., 225.

Section 12 of chapter 569 of the Laws of 1907, expressly excluded from the plan and scope of the duties prescribed for the commissioners, any streams or water courses which supplied the canals of the State, or which might substantially diminish the water supply of such canals or the navigability thereof, or which would effect a diversion from any of the navigable waters of the State in sufficient quantities to interfere with the navigable rivers or water courses. Under this last act the investigations carried on by the commission have been conducted with a view of devising plans for the progressive development of the water powers of the State under State ownership, control and maintenance for the public use and benefit, and for the increase of public revenue therefrom. This subject is outside of the navigable water courses of the State, but is one of the new departures to conserve for power purposes the vast system of unused waters of such rivers as the upper Hudson, Genesee, Raquette, Delaware, Susquehanna, and other smaller rivers.¹

It is possible that other exigencies may arise from time to time justifying still further amendatory legislation. The substance, however, and general provisions of the original barge canal law have been adhered to and carefully protected from insidious or open attack in or out of the Legislature. Barge canal construction has been delayed far beyond what might reasonably be justified, owing to political and adverse influences, holding in check public officials charged with the mandatory duty of prosecuting the work. On December 1, 1908, 37 contracts had been let, involving a gross expenditure of \$35,739,213, covering approximately one-third of the appropriation made for the barge canals. In his annual report for 1908, State Engineer Frederick Skene says:

"During the calendar year 1908, awards to the amount of \$13,-421,752 were made, so that there are now in force contracts for building 194 miles of canal, the contract price for these being \$35,-739,213, including all alterations to date. This means that nearly

1. See 4th an. rept. State Water Supply Commission for 1909.

one-half of the whole project, both in length and in cost of construction, is at present under contract.

"In my report of a year ago I stated that probably before the close of 1908 plans for all important contracts on the canal would be finished. This prediction has been fulfilled and now the plans for all except some 47 miles of canal are completed, including the three branches—Erie, Champlain and Oswego,—and the plans for these 47 miles are about 90 per cent. finished."

The Superintendent of Public Works in his report submitted to the Legislature on January 15, 1909, recommended the improvement of the Black River canal between Rome and Booneville, at an expense of \$75,000, and that portion between Booneville and Lyons Falls, at an expense of \$100,000, to put the latter into navigable condition, unless the same is to be abandoned.¹

Some controversy has arisen with reference to the location of the barge canal between the Mohawk river and Wood creek, in the vicinity of the sites of Fort Stanwix and Fort Bull, and engineers have differed as to the feasibility of the route in that territory. Mr. Emil Low, member of the American Society of Civil Engineers, in a formal publication which appeared in the *Rome Sentinel* of July 17, 1908, said that an early builder of the Erie canal, that eminent engineer, Benjamin Wright, clearly recognized the danger of building a canal through such treacherous material, and wisely kept the canal location to the northward of the swamp, avoiding it entirely. Mr. Low dissented from the opinion of those who proposed the construction of the canal to the west of Rome for a long distance above the drainage of the surrounding country, and advised that "a canal of the dimensions of the barge canal should be placed in the lowest part of the valley, where every advantage accrues, not the least of which is the water supply, instead of building it on a high level through swamps, with embankments towering above the surrounding surface and with nothing to build them of except muck, which would melt away like sugar as soon as the water was let in." He

1. See report, Supt. of Public Works, 1909, p. 8.

recommended the Oriskany or lower level, which would avoid expense of large embankments and less lockage.

Several routes were surveyed for the barge canal between the Mohawk and Wood creek. The last one requires the removal of the New York Central tracks from the city of Rome nearly half a mile to the south of their present location and the construction of the canal north of the relocated New York Central tracks, but south and west of the present alignment of the Erie canal through the city of Rome on what is known as the 420-foot water level above the sea.

The engineers, however, believe they have solved the difficulties attending the construction of the barge canal from the Mohawk river through Wood creek into Oneida lake and that the route finally decided upon will obviate heavy land damages in the vicinity of Rome, and that the storage reservoirs up the Trent river will largely drain the swamps in the vicinity of Rome and render the construction of the canal along the route proposed feasible and durable.

The account of the portage at Fort Stanwix and Fort Bull and the efforts to establish water communication between the Mohawk and Wood creek, have already been stated, and the conditions were fully understood by the engineers in charge of the barge canal construction. Other sections of the route have given rise to differences of opinion on the part of engineers in charge of the work, but they have finally reached substantial unanimity of opinion on all the problems that have thus far confronted them. It is to be expected that a work of such magnitude would give rise to many new problems and set in operation various courses of reasoning in their solution, and that very condition is one of the safeguards in skilful and permanent canal building.

Before the dimensions of the locks in the barge canal were decided upon the great Ymuiden locks of the North Sea canal were constructed, large enough to admit boats 442 feet long, of 52 feet beam, and of 23 feet draft. These were to be operated and lighted by electric power, and were among the largest and most modern type of large canal

locks, which involved some problems similar to those encountered in lock construction on the barge canal.¹

The route prescribed in the original act was modified pursuant to the provisions of chapter 710 of the laws of 1907, and chapter 508 of the laws of 1908, between the Seneca and Clyde rivers, so as to approach the outlet of Cayuga and Seneca lakes which, it was assumed, would ultimately be brought into barge canal communication with the new main barge canals. The route through the Montezuma marshes, from the inception of barge canal construction in the State, has been attended with serious engineering problems, owing to the nature of the soil and the annual inundation of that territory. It was thought that if the course of the Seneca river were followed from Three River Point south to the outlet of the Clyde and the course of that river followed westward, much of the flooded territory would be drained by the dredging of those two natural water-courses and the bed of the canal would be at the lowest point of the watershed and less subject to serious damage from flood conditions.

The conditions at Lockport and Cohoes have been thoroughly studied by the engineers in charge and the great cuts between the Hudson and the Mohawk north of Cohoes for the construction of the large locks in that portion of the canal are some indication of the magnitude of the undertaking where 76.7 per cent. of the prism excavation and construction were completed on December 1, 1908.

On January 1, 1909, there were 157 miles of barge canal construction under contract on the Erie, 35 miles on the Champlain, and two miles on the Oswego, aggregating 194 miles of barge canal construction in progress. The entire mileage to be built is approximately 444 miles.

In the building of the barge canals a reduction has been made in the number of locks on the Erie from 72 to 34, and there are but 20 locks on the Champlain and Oswego canals. These locks are all of uniform size and have an available length of 300 to 310 feet with a maximum length of 328

1. See "Commercial Relations of the United States" for 1902.

feet and a width of 45 feet, and a depth of 11 feet of water over the mitre sills, with a lift of from 6 to 40½ feet. Each chamber will be filled and emptied by two culverts, running inside the walls and connected with the chamber by numerous small openings, whose total area exceeds that of the culverts by 30 to 50 per cent. The valves are of the plain counter-weighted lift gate type, moving on four rollers at each gate. Concrete is used in the masonry work. The lock gates are made of steel of the mitering single, skin girder type, carrying the principal load as beams. The gates are operated by electricity derived from dynamos and turbines at the locks.

At Little Falls is being constructed one of the highest, if not the highest, lift lock in the world, with a difference of 40½ feet between the surfaces of the upper and lower pools. The lock at the lower gate is of the counter-weighted lift type. To avoid the necessity of building a gate to reach from the bottom of the lock to above the water of the upper pool a concrete beam extending across the pool far enough above the level of the water to admit of the passage of boats is being constructed. The upper portion of the gate when lowered will rest against this beam. This gate will be of the "Stoney" type, running upon tracks in the walls. The lower part of the north wall of the lock at Little Falls rests upon natural rock which has necessitated the use of the siphon principle in emptying the lock as the culvert will be several feet above the port pipes.

To economize in the use of water required to operate this lock, provision has been made for building a side pool on the side of the lock where the water can be stored and used for filling the lock a second time.

The great lock on the Oswego canal is filled and emptied by use of the siphon culvert which curves into a siphon neck with the addition of an operating tank, pipes and cylinders.

Noble E. Whitford, in his history of the canals already cited, thus describes the operation of the siphon locks:

"The siphon culvert is a device for filling and emptying lock chambers without the use of valves in the culverts, and is founded on the ordinary principles of siphons. The upper and lower end of

each culvert is formed like a siphon. By exhausting the air from the neck the water is sucked up into it and flows over into the lower portion; by admitting the air again the water sinks back and the flow stops. The vacuum needed to exhaust the air is produced in a chamber placed in any convenient position, and connected with the upper and lower pools. To operate the system, this chamber is first filled from the upper pool, and the connection is then closed. The pipe to the lower pool is then opened and the weight of the water in the chamber thus becomes suspended several feet above its natural level. The air-pipe from the neck of the siphon is then put in connection with the chamber; the air is sucked out, and as the water starts flowing the pipe is closed again. When the discharge has done its work, or if it is desired at any moment to cut off the flow, the two-way valve on the air-pipe is opened the other way, and the free air rushes into the neck again and stops the water.

"This system was first introduced in 1896 on the Elbe-Trave canal, near Hamburg, and all the locks of the canal, seven in number, were fitted with it. Some years' trial having proved its success it was introduced on the Teltow canal, and is being applied to other locks now building. For operating the siphons there is no machinery except the valves for the vacuum chamber, and a two-way valve for each siphon, together with the necessary mercury gauges. A turn of the wrist opens a valve, and about twenty seconds later the flow of water appears in the chamber. On turning the valve in the opposite direction, the flow ceases in about the same time. The only objection seems to be that the flow cannot be stopped for an accident in the lock quite as quickly as with ordinary methods. The difference, however, would hardly be more than five or ten seconds.

"The advantages of the system, briefly summarized, are the reduction of the number of moving parts, the dispensing with all motors and similar delicate machinery, together with the necessity of obtaining power to operate them, and a cost no greater and probably less than that for locks of standard design."

In modern canal construction in Europe and America not the least of the difficult engineering problems involved have been the designing and construction of locks of various types to answer the demands of commerce and to overcome natural difficulties in the way of canal construction, such as the rapids of the Rhone, the heavy tidal variations in the North Sea and Manchester ship canals, the falls at Cohoes, at Little Falls and at Lockport. These problems have been

rendered still more difficult by reason of rock formation in some localities, restricting the building to certain types of locks.

The construction of dams has been attended with no less difficulty as may be judged from the great Schutzenwehr at Herbrum, regulating the flow of the waters of the Ems, the Moldau movable dam in Bohemia regulating flow in that river, and the Assuan dam regulating the flow of the waters of the Nile.

Some of the difficulties in the canalization of the Mohawk river were foreseen by Daniel Spraker, jr., and mentioned in his circular. Among them was the danger of annual overflows and fields of ice carried down at springtime, liable to injure if not destroy, permanent structures along the canalized river.

The engineers have devoted much time to the consideration of the Mohawk and the type of dams to be constructed to withstand the annual overflows and ice gorges of that turbulent river. Mr. Whitford thus describes the movable dams in the process of construction along the Mohawk:

"Between Schenectady and Little Falls there will be eight dams of the bridge-and-gate type. The advantage of using movable dams instead of the ordinary fixed dams is that there will be practically no flooding except of a few islands and of a small amount of land close to the upper dams. Rises will pass without causing other damage than would have occurred had no dams been built, and all complications with the railways and much of that with the towns will be avoided.

"Concerning the type of dam which is being used, it may be said that of the four approved types of closures, the drum and bear-trap, the Chanoine wicket, the needle, and gates and curtains, the first mentioned can be used only when a good artificial head is available. They are, moreover, expensive, and while the Desfontaines drum has been a success, the later modifications have yet to prove their worth. The bear-trap is open to similar objections, and is too easily put out of order to be suitable to the present case.

"The needle dam has been used successfully with depths of thirteen feet on the sill, and two have recently been built for depths of eighteen feet. Such sizes, however, can only be used in connection with a weir, as the needles are too large for use in regulation,

and when removed have to be rehandled and stored on the bank. The labor of operation is considerably increased by the number of pieces to be cared for, and the high-lift dams of this type have not yet passed the experimental stage.

"The Chanoine wicket is much more compact, as it is self-contained, and for moderate depths and rapid streams it has proved very successful. For the depths desired, however, it would prove too cumbersome; the maximum height of wicket used heretofore has been about fourteen feet above the sill with a width of four feet, while it is proposed here to have depths from fifteen to nineteen feet on the sills. A wicket of proportionate size would be too dangerous to handle except under a small head.

"The structure best suited to the conditions is a curtain or a gate dam, and the latter type of closure is to be preferred, as it is simpler, less liable to injury and more water-tight. With gates a close and easy regulation can be obtained, and they appear to be suited to carry any head. The pieces move at right angles to the water pressure, and not against it or with it, as do the other types, and this feature permits less violence of motion and consequent danger of trouble.

"The conditions imposed are somewhat unusual, and have therefore required special treatment. The depth of channel, for instance, is unprecedented, the $10\frac{1}{2}$ foot channel of the lower Seine being the nearest approaching it. The dams have, therefore, to hold up a large head of water on porous foundations, and they must afford a sure means of regulating the pools so as to keep the desired depths and yet prevent flooding. They are designed to require the minimum of labor in operation as under ordinary conditions the size of the parts would render this laborious.

"In the bridge dam, the type adopted, the closure is made in the usual way with bridge-gate dams by gates with rollers moving up and down girders or frames hinged to the bridge above. The rollers are attached to the gates and travel in channels riveted to the upstream face of the frames. The structure includes only such elements as have been successfully used before. Their combination, however, has involved certain modifications as follows:

"The frame supports are spaced 15 feet apart instead of eight feet, the maximum hitherto used in river dams; the gates are thirty feet long instead of $7\frac{1}{2}$ feet long and they are used like overhanging beams, or cantilevers, instead of being supported at their ends.

"The use of the cantilever principle has its counterpart in Chanoine wicker dams, the portions of which above the horse are cantilevers pure and simple, and run to lengths of overhang of six or seven

feet as against $7\frac{1}{2}$ feet here. The advantages of the application to the proposed dams are that 12 inches to 15 inches I-beams will support the plating, whereas 20 inches or 24 inches would be needed if supported at the ends; that standard panels and framing can be used for the bridges; and that each frame in case of emergency can be detached without interference with the rest.

"The general advantages of the proposed arrangements are that the moveable parts of the dam are reduced to a few pieces and the operation will be correspondingly simple; the frames and gates are necessarily of great strength; and a standard type can be applied, with local modifications, to all the dams. Thus in the eight dams there are only four different lengths of bridge span, viz., 150 feet, 180 feet, 210 feet and 240 feet."

The delays in barge canal construction are in a measure due to the political changes that have taken place in the administrative and engineering departments of the State government since the barge canal law became operative. Unfortunately, under the existing provisions of the Constitution, it is not possible to create a commission charged with the responsibility of barge canal construction, because the supervision of all canal work is expressly vested in the Superintendent of Public Works and the State Engineer and Surveyor. Accordingly, whenever there is a change in the office of State Engineer, who under the barge canal law is expressly charged with the duty of preparing plans and specifications and making estimates under the direction of the Canal Board, there is necessarily an unavoidable delay. Time is required to familiarize incoming engineers with the status of contracts, and with the engineering problems involved in the progress of the work. To some extent this accounts for the want of progress in barge canal construction, but as the work advances and more contracts are let, there may be fewer delays in canal construction. The magnitude of the work, however, is so great, and the territory traversed involves so many engineering problems in carrying across the State a canal with a prism having a depth of 12 feet and a minimum bottom width of 75 feet, that changes in route and modifications in plans and specifications have been found necessary. Furthermore, many of

the questions of lock and dam construction are novel, and cannot be hastily determined without possible loss to the State. All these matters and others have operated to retard progress.

In a speech in the Senate on January 20, 1909, on the confirmation of Frederick C. Stevens as Superintendent of Public Works, Senator John Raines, in answer to criticism made in the press and elsewhere, said:

"There has been but one instance in the history of the whole work where plans and specifications have been approved, in which the Superintendent of Public Works has not speedily placed the work under contract, and that is in the case of contract No. 20, which covers 58 miles of dredging in the Mohawk river, at an estimated cost of more than \$4,000,000, and which, for the third time was advertised in September of last year without receiving a single bid. Immediately on ascertaining that no bids had been offered, the Superintendent of Public Works addressed a letter to the State Engineer and Surveyor and to the Board of Advisory Engineers, requesting recommendations as to what course should be pursued with reference to this contract. Inasmuch as no recommendations had been received, the Superintendent, on November 21, 1908, again addressed the State Engineer and the advisory engineers, calling their attention to his previous communication and to the fact that no advice had been received, and giving notice that unless specific recommendations were received by November 25th, he would proceed to re-advertise the work in its existing form. He did so re-advertise the work, two bids being received on December 22nd last. The lowest bid being more than ten per cent. in excess of the Engineer's estimate, the contract cannot be awarded, excepting with the approval of the State Engineer and the Canal Board. Therefore, the only delay in this case is such as conditions have made necessary."

In the annual report of the Advisory Board of Consulting Engineers for the years 1907-1908, as well as in the monthly bulletins issued by the State Engineer and Surveyor, may be found detailed information as to the progress of barge canal construction and the incidental problems arising from time to time in relation thereto. There was a disposition on the part of citizens opposed to the canal project to delay the work by appeal to the courts to test the

constitutionality of the barge canal act, and by advising delay on the part of those charged with the administration of the canal law. After an exhaustive hearing before the Attorney General, Julius M. Mayer, at which former Chief Judge Charles Andrews and Hon. Elihu Root appeared on behalf of the applicants, and John G. Milburn, George Clinton and Abel E. Blackmar appeared in opposition, he rendered his decision on March 8, 1905, sustaining the constitutionality of the barge canal law, and denying the application for permission to bring in the name of the people of the State of New York an action to test the constitutionality of that act.¹ No further suits have been brought to test the constitutionality of the act, and public sentiment has steadily grown in support of the measure, until there appears to be no further disposition to delay the progress of the work, which under favorable conditions may now go forward much more rapidly than it has hitherto.

It is the history of nearly all great public improvements that much more time is required in their consummation than was originally contemplated. That was the experience in the building of the original Erie canal, and is likely to be repeated in the building of the barge canals. The present Canal Board, however, consisting of the Hon. Horace White, Lieutenant Governor; Samuel Koenig, Secretary of State; Charles H. Goss, Comptroller; Thomas B. Dunn, Treasurer; Edward R. O'Malley, Attorney General; Frank M. Williams, State Engineer and Surveyor; and Frederick C. Stevens, Superintendent of Public Works, have organized and resolved to expedite the work as much as possible, having due regard for the condition of the plans, specifications and estimates, of sections of the work not yet let, and the recommendations of the Advisory Board of Consulting Engineers thereon. All departments are working in harmony.

Public sentiment has steadily grown from the inception of the barge canal project, and several outlying counties look forward to the time when they may be brought into

1. See Opinions of the Attorney General for 1905, pp. 187-201.

water communication with the barge canal trunk lines and with the Hudson river. Among these are the counties on and about Seneca and Cayuga lakes, as well as those bordering on the Black river and Black river canal, and sections of the State bordering on the Delaware & Hudson canal.

A similar experience followed the passage of the original canal bill in 1817, which led to the enactment of an omnibus canal law authorizing the construction of various lateral canals. Some of them were in fact constructed.

As the population becomes denser and the transfer and distribution of products more congested, the return to waterways as a means of freight transportation will become a matter of necessity, as in France, Germany, Austria and the Netherlands.

This historical review has demonstrated that New York's commercial ascendancy is based on a broad, intelligent conception of its natural advantages for handling the vast commerce passing between the high seas and the Great Lakes. This conception has dominated its successive generations of inhabitants, who have been wise enough to foresee and utilize these natural advantages to the upbuilding of the most powerful State of the Union. New York's commercial ascendancy, therefore, rests primarily on the intelligence and enterprise of its inhabitants; and as long as these basic principles continue to shape the policy of the State in legislation, in commerce, in the industries, in agriculture and in the arts, it will undoubtedly continue the imperial State of the Union. Its natural waterways

" . . . as the seas to which they go,
Are nature's bounty; 'tis of more renown
To make a river than to build a town."¹

The history of its natural and artificial waterways forms a large part of the history of the State, and their development and improvement have engaged the attention of its inhabitants for more than a century.

1. Waller.

The servitude of these great waterways has been continuous and of inestimable value in the saving of transportation charges and in building up the commerce of this State. No one is so reckless as to undertake to estimate the direct and indirect benefits that have thus accrued to the State during the last 125 years; and who is bold enough to predict the benefits that will accrue to the State with its completed barge canal system in full operation, carrying a considerable portion of the vast tonnage passing to and from the high seas and the Great Lakes!

In a recent address before the Finance Committee of the Senate, Hon. Francis Lynde Stetson said: "Nothing has contributed more to the development of the entire State than the construction of its canals, which brought into communication the waters of the Great Lakes and of Lake Champlain with those of the Hudson river, thus completing a magnificent system of waterways throughout the State."

The commercial supremacy of New York over that of other States is built on a broad, intelligent and progressive policy, conceived of and formulated through the years by gifted, far-seeing, public-spirited citizens, *qui possunt rerum cognoscere causas*, and put into practical operation through the indestructible energy of the enterprising people, who have from time to time constituted the State. New York, the emporium of the western hemisphere, did not spring full-grown, like Aphrodite, from the foam of the sea, but more like Venice, that romantic city of the Renaissance, whose merchant fleets under the sagacious policy of her doges transported the commerce of the Adriatic and drew much of the trade from the Mediterranean, which has been styled "the sea of civilization."¹ But "Venice fell at the foot of the cradle of America like Iphigenia at the foot of the cradle of Greece," says Castelar, and her doges in their gilded barges ceased their annual ceremonies to symbolize the union of Venice and the Adriatic by dropping golden rings into its waters and by plighting their troth in the words, "We espouse thee, O

1. Castelar's "Old Rome and New Italy," p. 136.

Sea! in token of true and eternal sovereignty." That floating city with its palaces of art, its superb cathedral, and its stately and beautifully frescoed council halls, wherein were resolved the important affairs of the Republic, though in its decadence, reminds us of its achievements in commerce which were worldwide and conducive to and no less remarkable than its ideals and attainments in the fine arts.

The decline of Venice was followed by the rise of Antwerp and Amsterdam, and the ultimate commercial ascendancy of New York, which not only is drawing unto itself the argosies from across the high seas, laden with the products of many climes, but also a large part of the vast tonnage of the Great Lakes over the waterways of the State. The growth of the emporium of the western hemisphere has been exponential of the marvelous commercial development of this "noble and puissant nation," founded on a much more liberal and enduring basis than that empire, of whose people and dominion the poet said:

"His ego nec metas rerum nec tempora pono:
Imperium sine fine dedi."¹

The Colossus of Rhodes, the Pharos of Alexandria and the Statue of Liberty in New York harbor are some expressions of the commercial enterprise of great states, the first of which gave to the world a maritime code; the second maintained for thousands of years a vast population largely dependent upon the commerce of the sea and the Nile, which also watered its grainfields; and the third is forging forward to the position of the first commercial nation of the world.

The phenomenal growth of New York is due to the tides of commerce that have surged through it, as the gateway of the nation. It will soon pass London, if it has not already done so, in its foreign and domestic commerce and become the emporium of the world. The State's waterways have largely contributed to this result, and merit the continued consideration of its enterprising and progressive people, for waterways are nature's highways, affording to all the most

1. Virgil's *Æneid*, book I., lines 76, 79.

economical means of transportation known to man. The marvelous growth of the cities along its natural and artificial waterways are the best evidence of the value of this means of transportation which is again generally recognized as indispensable in the development of a state and a nation. The revival of this economic principle is apparent in the movement already assuming national proportions.

Five national river and harbor congresses have convened in Washington, consisting of delegates from the Atlantic, Gulf, Mississippi, Great Lakes, Ohio, Missouri and Pacific Coast districts, to consider the question of river and harbor improvement, and waterway development in this country. The last congress was held in Washington from December 8 to 11, 1908, and was attended by upwards of 4,000 delegates. It was presided over by the Hon. Joseph E. Ransdell of Lake Providence, La. In the list of vice-presidents is Mr. William B. Jones of Albany, and of the directorate are Edward H. Butler of Buffalo, Olin J. Stevens of New York, and Robert Downey of Oswego. This congress adopted resolutions, which were presented to the President, the Vice-President and Speaker of the House of Representatives, in favor of the "issuance of bonds to the amount of five hundred millions, to be sold from time to time, as may be necessary to improve the deserving waterways of the country, that have been examined and favorably reported upon the U. S. Corps of Engineers. The bonds are to be issued under the same provisions as those authorizing the construction of the Panama Canal." The Government, however, is not likely to authorize any such bond issue until it establishes and puts into effect a permanent waterway policy.

The delegates from the State of New York at the National River and Harbors Congress in Washington, on December 9, 1908, organized by the election of Hon. John D. Kernan, chairman, and S. C. Mead, of the Merchants' Association of New York, secretary, and Bert L. Jones of Buffalo, treasurer; and the chairman was authorized to appoint a committee to formulate plans for a New York State Waterways Association. The chairman nominated the

following gentlemen as that committee: Henry W. Hill of Buffalo, chairman; William H. Gratwick of Buffalo, Patrick W. Cullinan of Oswego, Thomas Spratt of Ogdensburg, John R. Myers of Rouse's Point, William B. Jones of Albany, Gustav H. Schwab, Frank Brainerd, Olin J. Stevens, and Robert J. MacFarland, all of New York. The chairman and secretary of the conference were made ex-officio members of the committee. This committee had a meeting in Albany on January 13th, and another meeting in New York City on January 20th and 21st, and made some progress in formulating plans for a State Waterways Association. They were invited and accepted the invitation to meet with delegates from various parts of the State at a conference held under the auspices of the Manufacturers' Association of New York, at the Manufacturers' Building in Brooklyn, January 21 and 22, 1909. That conference was well attended from various parts of the State. The address of welcome was made by Andrew F. Wilson, president of the Manufacturers' Association of New York. Addresses were also made by the writer, on "The Waterways of New York"; by Hon. John D. Kernan on "The Position of New York State towards National Waterway Development"; by the Hon. George Clinton, chairman of the International Lake Level Commission, on "Lake Levels"; and others on kindred topics, including one by William B. Jones, secretary of the Albany Chamber of Commerce, on "Hudson River Improvement"; by Jared T. Newman of Ithaca on "The Necessity of connecting Cayuga and Seneca Lakes with the Barge Canal"; by Norman D. Fish of Tonawanda on "The Necessity of Improving the Terminal Facilities of the Erie Canal"; and by Captain Charles Campbell of the Lighterage Association of the Port of New York, on "The Disabilities and Possibilities of the Port of New York," in the course of which he quoted the following statement made by Erastus Wiman, before the New York Commerce Commission: "The purposes of a terminal are three: The first is receipt, the second is storage, and the third is shipment. Where these are united as at Newport News, Baltimore and New Orleans in the

South, and at Montreal, Boston and Portland in the North, a perfect terminal exists; but in the proportion that they are separated, as they are in New York, that is an imperfect terminal. That difficulty has created what is called a 'lighterage arbitrary,' and it is the most arbitrary thing in the harbor of New York. The lighterage arbitrary, the cost of transfer from the place of receipt to the place of storage and the place of shipment—that lighterage arbitrary, after years and years of experience, is found to be necessary on every pound of stuff that comes into New York, it must be so; it is a lighterage arbitrary." In speaking of the location of terminals he said on "points of vantage":

1st. They must be in a location removed from the present congested centers of shipping in the harbor.

2nd. They must be adaptable to the most economic construction within their area of all the essentials of perfect terminals, namely, points of receipt, points of delivery, and ample storage facilities, with the most improved modern appliances for the trans-shipment of cargoes, import, export or domestic.

3rd. Their capabilities of sheltering the craft within their confines and thus minimizing the damage caused by the several elements, with which all shipping has to contend, such as heavy seas, ice, strong tides, etc.

4th. So situated that the ocean carrier can dock or sail under her own steam, or warp with her winches, without the additional expense entailed by hiring the assistance of tugs.

Addresses were also made by William Simmons on "Rate Discriminations against the Port of New York," by Alexander R. Smith of New York on "State Canals and what is needed to make them Efficient." The Hon. Joseph E. Ransdell spoke on "The National River and Harbor Congress, its Aims and Objects." The Hon. J. Hampton Moore, M. C., spoke on the "Atlantic Deeper Waterways," and the Hon. O. P. Austin of Washington delivered an illustrated lecture on "Modern European Transportation Methods."

This conference organized a permanent New York State Waterways Association, and elected the following officers for the first year: President, Robert J. MacFarland of Brooklyn; first vice-president, Senator Henry W. Hill of

Buffalo; second vice-president, Hon. John D. Kernan of Utica; third vice-president, ex-Comptroller Edward M. Grout of Brooklyn; secretary, Hon. Frank S. Gardner of New York; and treasurer, Hon. Frank S. Witherbee of Port Henry. The executive committee of the association consists of Robert J. MacFarland, Henry W. Hill, John D. Kernan, Edward M. Grout, Frank S. Gardner, Frank S. Witherbee, William H. Gratwick, Patrick W. Cullinan, Thomas Spratt, John R. Myers, William B. Jones, Gustav H. Schwab, Frank Brainerd, Henry A. Meyer, Olin J. Stevens, S. C. Mead, Oscar S. Foster of Utica, Roy S. Smith of Elmira, Jared T. Newman of Ithaca, James T. Hoile of Brooklyn, and L. B. Green of Patchogue.

The New York State Waterways Association declared its purpose in substance to be, so far as lies in its power, to advocate and urge upon the Congress of the United States the just claims of every navigable water within the State of New York, the improvement of which would be a proper undertaking by, and the cost of improving which would be a proper charge upon, the Government of the United States. It further declared that while it is manifestly important that there should be united action so far as practicable, no support either from any locality or of any member of Congress will be accepted on the condition of giving the endorsement of this conference or of the State Association to be organized for any project which is not in itself meritorious and properly chargeable to the national treasury or to the State or locality respectively. Upon this just and sound principle the New York State Waterways Association will stand before the country and before Congress and the State Legislature, and will concede that which is just to others, and demand that which is just to our own State. The organization of the permanent Waterways Association is a natural outgrowth of years of agitation on the subject of transportation by water in this State, and in accord with a movement well nigh national, to secure better facilities in transportation to supply the demands of the ever-growing commercial and industrial development of the nation. The New York State Waterways Association

is representative of the various commercial bodies, and all sections of the State.

Such improvement in the natural waterways of the State as that proposed in the upper Hudson from the city of Hudson to Waterford by the Federal Government falls within the cognizance of the New York State Waterways Association. That improvement has been strongly urged by the cities of Albany and Troy, the data for a portion of which are set forth in a memorial on the canalization of the Hudson river between Troy and Waterford, to the Congress of the United States, prepared by the Hon. Frederick Skene. The movement contemplates the deepening of the Hudson river from the city of Hudson north of the city of Troy to the depth of 22 feet, with a width of 400 feet, which will enable coastwise steamers to sail up the Hudson as far as the city of Troy, and will obviate the necessity of the State deepening the Hudson river between those points for the barge canal, which will result in a saving of a million or more of dollars.

The revival of interest in canal construction and waterway improvement, primarily for commercial purposes and industrial development, is such that the time will undoubtedly come when the lakes and rivers of the State will again be brought into navigable communication. Not only will the servitude of these waterways be generally recognized as of prime importance in the upbuilding of the State, but they are a resort for purposes of health and pleasure, enlivened by the numerous motor boats and other water craft that ply on their waters. Central New York, with its picturesque lakes, is already the abode of a prosperous people, and is approaching in celebrity the lake region of England. The State waters are not unlike those of the Fatherland pictured by Goethe in his "Faust," where he says:

"How the wide water, far as we can see,
Is joyous with innumerable boats."

The majestic St. Lawrence, explored by Jacques Cartier in 1535, is already the resort of pleasure seekers whose well-equipped yachts, swift motor boats and American canoes

have made it and its Thousand Islands attractive to the citizens of many states. The far-famed Ontario was a highway for traders, colonizers and early commerce long before there was a Utica, a Syracuse, a Rochester or a Buffalo. Over its waters passed expedition after expedition from pre-historic times to the War of 1812, when Sodus Bay, Sackett's Harbor, Oswego and Niagara rivers became household names.

The tempestuous Lake Erie was navigated by Indians in canoes before it was by the whites, whose early exploits thereon were not only hazardous but quite generally disastrous, as appears in the following brief narrative. The first sailing vessel on the upper lakes was the brigantine "Le Griffon," called by the Indians "The Great Wooden Canoe," of 60 tons burthen, launched near the mouth of Cayuga creek, the present site of La Salle, since styled "The cradle of the commerce of the continent," in the year 1679 by Robert Cavalier de La Salle; the first vessel, other than canoes, built upon and which sailed the upper lakes; she was lost on her first return voyage with her cargo and all on board. The vessel and cargo were valued at \$12,000.

In 1818, at Black Rock was built the Walk-in-the-Water, lost on the first day of November, 1821, in a storm which drove this first steamboat on the upper lakes ashore a mile south of Buffalo river.

Lake Erie is now successfully navigated by large freighters, elegantly-equipped passenger steamers, sailing vessels and all kinds of pleasure craft. The interior lakes and rivers of the State are many and picturesque and several of them the pleasure resorts of many citizens. Lakes George and Champlain, and the Hudson river, for three centuries have been visited by travelers; and Champlain and the Hudson, when connected by the barge canal, will form the major part of a continuous waterway from New York harbor to the St. Lawrence, not only for commerce, but also for the numerous pleasure craft that will ply upon them.

In the grant of 25,000 acres of land by the crown in 1765 to Philip Skene, Wood creek was reserved as a common

highway for the benefit of the public.¹ It formed one of the Indian routes through the "grand passes" between the Hudson and Lake Champlain long before its discovery by the white man. The bed of Wood creek has thus been held to belong to the State and constitutes one of its common and public highways, through which the barge canal is being constructed.

The Dominion Government of Canada has appropriated for a survey of the Richelieu river and Chambly canal for the purpose of increasing their navigable capacity to that of the New York barge canal or larger. Commander Alfred Brooks Fry of the Advisory Board of Consulting Engineers in a recent address predicted that such an improvement in connection with the barge canal would open uninterrupted water communication from points as far south as Norfolk to points as far north as Rouses Point, St. Johns and Montreal.

Our waterways comprise artificial, as well as natural channels, and lakes as well as the ocean. New York has under construction or improvement 444 miles of canals and canalized rivers, 200 or more miles of navigable rivers, several hundred miles of navigable lakes and more than a hundred miles of seacoast in addition to Long Island Sound. Over these are annually transported thousands of tons of freight, comprising many commodities, natural and manufactured products, and thousands of passengers. These waterways have been and now are as useful and as essential in the economic development of the State and in the maintenance of its ever-growing population as have been and are its highways and railways. They also serve a most important function in affording opportunities for recreation and pleasure to its ever-increasing population.

A perusal of the foregoing pages will lead to the conclusion that the evolution in waterway development and canal building in this State forms an essential part of its history and is a visible expression of the constructive genius of its

1. See opinion of Judge Murray in *Johnson vs. State Court of Claims*, filed Jan. 11, 1909.

people, working through several generations, who laid the foundations for the State's commercial supremacy on economic principles as immutable as the law of gravitation and as irresistible in their operation as the tides of the sea. While other states, from the lack of initiative, were sluggish or apathetic, New York forged forward, spurred on by the enterprise exhibited in the Netherlands, Germany and France, to the first commercial State in the Union. Its pioneers and early statesmen were deeply impressed with the phenomenal waterway development in European countries, and as they traced back that development to the middle and classic ages, they found many illustrations of an active commerce, giving to several states and nations the lead in the march of civilization. This appeared in the remarkable exploits and achievements in commerce of the bold Phœnicians, the skilled Rhodians, and the enterprising Æginetans in the classic ages, and of the famous Venetians in the middle ages, whose glories have been the themes of sculptors, painters and poets for centuries.

The history of the commercial development of modern European nations, with their network of canals and improved natural waterways affording cheap transit for the products of mines, fields and factories, was no less stimulating to Dewitt Clinton and the canal advocates of his period who foresaw the possibilities of extensive domestic commerce over a system of artificial canals in connection with the natural waterways of the State, than the commercial achievements of the previous centuries; and they believed that it would be the means also of augmenting the foreign commerce of the port of New York. They planned wisely, and the fruits of their labors are our heritage, which we enjoy today.

The long line of canal commissioners, engineers, superintendents of public works and other officials, and public spirited citizens, who have thought out and solved the many problems incident to the prosecution of this marvelous system of internal improvement, has remained unbroken from its inception, and will undoubtedly continue until its completion. On their devotion to public duty largely rests the

ON THE CANAL AMENDMENTS

IN THE NEW YORK STATE CONSTITUTIONAL
CONVENTION, SEPTEMBER 10, 1894.¹

Mr. Chairman, waterways are the highways of commerce. Whether they be natural or artificial, they are equally well adapted to float the commerce of the world. The great historic nations were for the most part maritime nations. Their commercial supremacy was largely due to the sea.

Ovid declares that

"Jupiter, surveying earth from high,
Beheld it in a lake of water lie."

The commerce of the Mediterranean states has ever been such as to justify that declaration. But the great nations of the past were not confined exclusively to natural waterways. Many of them constructed extensive systems of artificial waterways, and among such may be mentioned China, India, Assyria, Egypt and Rome. Hydraulic engineering was carried to great perfection among the Romans, and their pro-consuls were required to submit plans "for changing the course of rivers for the purpose of facilitating the approaches from the sea to the centers of the various provinces," and we read that "Lucius Verus undertook to construct a canal from the Mediterranean sea to the German ocean." All the states of modern Europe have constructed extensive systems of inland waterways. Addison says:

"Whole rivers here forsake the fields belo,
And wondering at their height, through airy channels flow."

1. In this convention Mr. Hill was a delegate from the 31st Senatorial District.

Great Britain, France, Germany, Belgium, Holland, Italy, Sweden, Russia and Austria-Hungary transport much of their products by means of such inland waterways. It has been said that

"Much importance is there attached to having the command of cheap and adequate water transport, and it seems to have been allowed that it is the function of railways to convey passengers and traffic that must be transported speedily, and they will bear a high rate of freight, while it is the function of waterways to convey heavy luggage or traffic that will not bear a high-rate freight, from point to point, at a low rate of speed. The sea-girt British Isles have upward of 2,500 miles of canal, in addition to the Manchester ship canal, which is thirty-five and one-half miles long, and is said to be one of the most remarkable undertakings of modern times."

The commercial prosperity of England is said to date from the period of her canal development. In 1878, Germany had in operation 1289 miles of canals, and had ordered the construction of 1045 miles of new canals. Belgium has forty-five miles. France has expended a larger amount of money than any other European nation to provide for canal navigation, and in 1887 the total length of its canals was 2998 miles. About forty-eight per cent. of the tonnage of that republic was transported on its waterways. The average capacity of boats used therefor was 300 tons.

Italy has a complete network of artificial waterways, which have contributed more to her urban prosperity than has the Mediterranean. Holland, Sweden, Spain, Russia, Hungary and other European states have their respective systems of artificial waterways, whereby it is made possible to maintain an extensive inland continental commerce. In 1890 the United States had in operation 2926 miles of artificial waterways, in addition to her thousands of miles of navigable rivers.

Canada, South and Central America have their respective systems of well-constructed inland waterways of vast importance to their commercial prosperity. Several mammoth canals have been projected, such as that of Hungary to connect the Danube with the North sea, the German ship

canal now being constructed between the North and Baltic seas, the Italian ship canal to connect the Tyrrhenian and the Adriatic seas, the Russian canal to connect the Baltic and White seas, the Corinthian ship canal now being constructed, the French ship canal to supersede the present Languedoc canal to connect the Mediterranean and Bay of Biscay, the Panama and Nicaraguan ship canals to connect the Atlantic and Pacific oceans, the Florida, the Delaware and Chesapeake and the Hennepin canals, the latter of which is in the process of construction, and the recently proposed canals to connect Georgian bay with Lake Ontario. Such vast internal improvements as these, and many others that might be mentioned, conclusively demonstrate that the era of canal construction has not passed, but that the construction and extension of inland waterways is still going on the world over.

"By which remotest regions are allied,
Which makes one city of the universe,
Where some may gain, and all may be supplied."

The Suez canal, the "great highway to the East," connecting the Mediterranean and Red seas, the waterways of India, China, Europe and America, and other systems of the artificial water communication in the Eastern and Western hemispheres, have made it possible in the great marts of trade to make an interchange of the products of the Orient and Occident. Ocean, river, lake and canal communication form an unbroken highway for the transportation of the products of the world to every nation.

Remotest regions may thus contribute their products to supply the wants of the great commercial nations of the earth. Waterways facilitate the interchange of commodities and bring the products of all nations within easy access of the people of the earth. Ever since the Homeric age, natural and artificial waterways have been the highways of commerce and a very potent agency in promoting the development of high civilization.

Inland water transportation has been favored in America by Washington, in Russia by Peter the Great, and in France

by Louis XIV. The wise policy, which has led modern States to provide for such transportation, is likely to continue, and New York can ill afford to be governed by a different policy. What Gibbon has said of the servitude of rivers, we may say of canals, that they are "the noblest and most important victory which man has obtained over the licentiousness of nature." Thus conserved, the bounteous waters of nature become a vehicle to transport for man the products of field and factory. Freely do they serve his purposes.

As New York was the first to push forward her vast system of internal waterways, "which," it is said, "have contributed more to the advancement of commerce and civilization than any similar work recorded in history," so New York should be the last to suffer her internal waterways to lapse into a condition of neglect and disuse. Many good citizens fear that such a condition is likely to occur and think that this convention ought to recommend the adoption of some amendment which will result in the improvement of the principal canals of the State.

Undoubtedly it would be unwise to undertake the construction of a ship canal between Lake Erie and the Hudson, as contemplated by some of the proposed amendments which have been offered in this convention. The cost of such a canal precludes its construction by the State, and the State ought not to relinquish to the Federal Government its vast system of internal waterways, which, as we shall hereafter show, are of great value to the State and which have hitherto and now are contributing millions of dollars, received from freights, annually to its wealth.

The State should ever maintain control of its artificial waterways, and such was the opinion of the joint legislative committee of 1817. Then, again, engineers have expressed grave doubts as to the adequacy of the canal feeders of the State to supply a ship canal, if constructed, with sufficient water to float large lake vessels across the State to the Hudson. Inadequacy of water supply might prove an insuperable obstacle to such a system of water transport. There is still another objection to such an undertaking, and that is

that lake freight rates are so low that capital does not find profitable investment, except in vessels of large tonnage, drawing from fifteen to twenty feet of water and capable of maintaining a speed of not less than twelve knots an hour. Slower and smaller crafts are being superseded in lake transportation by larger and swifter vessels. With the existing sharp railway competition, vessels that may be profitably engaged in lake transportation would prove unprofitable investments were they subjected to the restrictions and delays incident to the navigation of a canal connecting our Great Lakes with the Hudson.

For these reasons, as well as others that might be mentioned, it must be apparent to all that a ship canal might not be a feasible waterway and that it is wiser to adopt some such plan as that suggested by State Engineer Horatio Seymour, Jr., which has the approval at least of the friends of the canals. But it is seriously contended that this convention should do nothing at this time for canal improvement, but suffer the present constitutional provision to remain unchanged; that the canals are now large enough to supply all the demands made upon their carrying capacity, and that the people are opposed to further taxation for canal improvement; that the canals are a source of expense and without profit to the State, and many other reasons have been assigned why no affirmative action should now be taken providing for canal improvement. History thus repeats itself and the friends of the canals are required to

"Fight all their battles o'er again."

The whole matter must be argued *de novo*, as though proposed canal construction were for the first time coming up as an original proposition. Living actually, or almost in touch with canal transportation, its beneficent effects upon our commercial and industrial life are so continuous that we are as unmindful of them as we are of those of the air we breathe. At this late day, after so much has been said and written by the great statesmen whose names adorn the history of New York, in favor of the efficiency and perpetuity of the canals, but little more can be said in relation to this

matter. The canals have been so inseparably connected with the commercial supremacy of the Empire State, they have come to be regarded as indispensable. At the beginning of the present century the wealth of this State was exceeded by that of Massachusetts, Pennsylvania and Vermont and equalled by that of Connecticut and North Carolina. Much of our fair domain was then a wilderness, peopled only by Redmen. Western New York and the territory bordering on the Great Lakes were on the outskirts of civilization. Utica, Rochester and Buffalo were still villages.

The completion of the Erie canal changed this condition, and our State soon took her place at the head of the list of States, and has ever since maintained that proud position. Whether or not she retained that position, in my judgment, depends upon her attitude toward her great waterways. We are satisfied that this is capable of absolute demonstration, but before entering upon the consideration of that matter, permit me to refer briefly to the genesis of the Erie canal. The Historian of the Five Indian Nations speaks of a "water communication between the Onondaga river and the country of the Iroquois, and the facility of transportation between the lakes and Schenectady," and says, "there were three portages in the whole route, two of which were very short."

In 1784 Christopher Colles of New York City proposed to the State Legislature that it undertake the improvement of the Mohawk river to render it suitable for navigation. During the following year he received \$125 from the State Legislature and published an essay, in which he set forth the suggestion of inland navigation between Albany and Oswego, and in which he says, "the Allegany mountains, which pass through all the States, seem to die away as they approach the Mohawk river, and the ground between the upper part of this river and Wood creek is perfectly level."

In 1791 Governor George Clinton called attention to the fact of the importance of such internal improvements as would tend "to facilitate the means of communication with our frontier settlements, as well as to strengthen the bonds of society, as to prevent the products of those fertile districts from being diverted to other markets"; and the Leg-

islature thereupon passed "an act concerning roads and inland navigation."

In 1792 the Western Inland Lock Navigation Company was incorporated to open communication in natural waterways, and by canals to Seneca lake and Lake Ontario, and the State was to give \$12,500 to this company when it had expended \$25,000. This company constructed a canal at Little Falls, two and three-quarter miles in length, with five locks, and also a canal a mile in length at the German Flats, and a little later one between the Mohawk and Wood creek. These were used but little. The purpose of this navigation company was "principally to improve the natural water courses between the mouth of the Onondaga and the Mohawk, and to connect them by the short cuts, which were necessary for that purpose."

The Western Company had no conception of the formation of "a canal from Lake Erie to the Hudson." The names of Cadwallader Colden, Sir Henry Moore, George Washington, George Clinton, General Philip Schuyler, Gouverneur Morris, Jesse Hawley and others have been credited with being the first to suggest a great artificial waterway between Lake Erie and the Hudson. As early as 1787 Joel Barlow, in his "Vision of Columbus," prophesied that:

"From fair Albania, toward the setting sun,
Back through the midland length'ning channels run;
And the fair lakes, their beauteous towns that lave,
And Hudson's joined to fair Ohio's wave."

Mr. Joshua Forman, in 1808, was first to introduce a concurrent resolution in the State Legislature providing for a survey for such a canal. The commissioners appointed under this resolution, in 1810, were Gouverneur Morris, Stephen Van Rensselaer, William North, Thomas Eddy and Peter B. Porter, and they were empowered to explore the whole route for inland navigation from the Hudson river to Lake Ontario and to Lake Erie. Their report was laid before the Legislature in 1811, and Robert Livingston and Robert Fulton were added to the other commissioners. By an act of the Legislature, passed in 1811, these commission-

ers were authorized to apply to Congress for coöperation and financial aid; but the federal government and the sister States declined to assist the State of New York in her great undertaking to connect the waters of the Great Lakes with those of the Hudson river. By an act of the Legislature, passed in 1816, to provide for the internal navigation of the State and "to effect communication by canals between the Hudson and Lake Erie and Lake Champlain," Mr. Stephen Van Rensselaer, Mr. De Witt Clinton, Mr. Samuel Young, Mr. Joseph Ellicott and Mr. Myron Holley were appointed commissioners with power to appoint engineers, and \$20,000 were appropriated for defraying the expenses of the work to be so commenced.

These commissioners caused surveys to be made and made an elaborate report, prepared by De Witt Clinton, to the Legislature of 1817, in which they divided the proposed Erie canal into the western section, extending from Lake Erie to the Seneca river, the middle section, extending from the Seneca river to Rome, and the eastern section, extending from Rome to Albany.

In 1817 De Witt Clinton, to whom more than to any other man are we indebted for the Erie canal, prepared a bill to authorize the Canal Commissioners to begin canal construction and to provide for the payment of interest on "loans, which might be made, and the debts that would be created," in prosecuting the work of such canal construction. Hon. Elisha Williams supported with much ability the bill in the Assembly, and in reply to the members from the city of New York, nearly all of whom were opposed to the construction of the proposed canals, said: "If the canal is to be a shower of gold, it will fall upon New York; if it be a river of gold, it will flow into her lap."

In the Council of Revision, Thompson and Tayler were outnumbered by Platt, Yates and Chancellor Kent, who declared himself "in favor of the canal," and cast the decisive vote that ushered in the canal policy of the State. The construction of the Erie canal was commenced at Rome on July 4, 1817, and completed in 1825, at a cost of \$7,143,789.86. It was 363 miles long.

It has been even said that, "for a single State to achieve such a victory—not only over the doubts and fears of the wary, but over the obstacles of nature—causing miles of massive rocks at the mountain ridge to yield to its power, 'turning the tide of error as well as that of the Tonnewanta, piling up the waters of the mighty Niagara, as well as those of the beautiful Hudson, in short, causing a navigable river to flow with gentle current toward the steep mount at Lockport, to leap the River of Genesee, to encircle the brow of Irondequoit, as with the laurel wreath; to march through the rich fields of Palmyra and of Lyons, to wend its way through the quicksands of the morass at the Cayuga, to pass unheeded the delicious licks of Onondaga, to smile through Oneida's verdant landscape, to hang upon the arms of ancient Mohawk, and with her, after gaily stepping down the cadence of the Little Falls and Cahoes, to rush to the embrace of the sparkling Hudson,' and all this in the space of eight short years, was a work of which the oldest and richest nations of Christendom might well be proud."

One historian says, "the opening of the grand Erie canal put courage into the hearts of the people. Joy and gladness were to be seen in the countenances of all." On October 26, 1825, public opinion voiced itself at Buffalo in the following celebrated ode:

"Strike the lyre! with joyous note,
 Let the sound through azure float,
 The task is o'er, the work complete,
 And Erie's waves with Ocean meet;
 Bearing afar the rich bequest,
 While smiling commerce greets the West.
 See where the peaceful waters glide,
 Through the woodlands wild, as if in pride,
 To mark that learning makes her home
 Where solitude has set her throne.
 Strike the lyre! 'tis envy's knell—
 Pallid fear within her cell
 Shrinks aghast—while truth and fame
 On glory's scroll 'grave Clinton's name.

Strike the lyre! 'tis freedom's song,
 While th' red flash, the line along,

Tells to the world with echoing roar,
Matter and space are triumphed o'er!
Gigantic genius led the van
While sturdy toil fulfill'd the plan.
What boundless gratitude is due
To those, whose purpose, ever true,
Pursued their course with daring pride
Till Erie's waves caressed the tide.
Strike the lyre! should discord's brand
In vain be hurled by impious hand,
New York can proudly boast alone
She wove the band—the Union's zone."

The roar of artillery, which was repeated at stated intervals across the State on October 26, 1825, proclaimed the commencement of the voyage of Governor De Witt Clinton in the "Seneca Chief" from Lake Erie through the Erie canal and down the Hudson to Sandy Hook. It was a continuous ovation, unparalleled in the annals of the State. One of the badges worn in New York City had this motto: "Devised by Genius, Performed by Industry." Upon his arrival at Sandy Hook, on November 4, 1825, he poured the keg of water, which he had brought from Lake Erie, into the Atlantic ocean, and said: "The solemnity at this place, on the first arrival of vessels from Lake Erie, is intended to indicate and commemorate the navigable communication which has been accomplished between our Mediterranean seas and the Atlantic ocean, in about eight years, to the extent of more than 425 miles, by the wisdom, public spirit and energy of the people of the State of New York, and may the God of the heavens and earth smile most propitiously on this work and render it subservient to the best interests of the human race."

Bottles of water from the Elbe, the Thames, the Seine and Tagus rivers were mingled with the waters brought from Lake Erie and the Hudson to symbolize commercial intercourse with all nations. The preamble of the act of 1817, by virtue of which the Board of Canal Commissioners were empowered to commence the construction of the State's great artificial waterways, contained these words, "navigable communication between Lakes Erie and Champlain, by

means of canals, connected with the Hudson, will promote agriculture and commerce, mitigate the calamities of war, and enhance the blessing of peace, consolidate the Union, advance the prosperity and elevate the character of the United States." That declaration has been verified.

In 1819 the Genesee county farmer sold his wheat for thirty cents per bushel; in 1825, in consequence of cheap canal transportation, he realized for his wheat one dollar per bushel. In 1817 it is said that it cost \$100 to transport a ton of merchandise from New York City to Buffalo. The effect upon travel was also beneficial, and a traveler was enabled to make a journey from New York up the Hudson and by way of the Erie canal to Buffalo, a distance of 513 miles, in six days, for the small sum of eighteen dollars.

Canal packets, with their clean and commodious quarters, gradually superseded the dusty, tedious, expensive and lumbering stage-coach. The ease and comfort afforded passengers of canal packets indicated a decided improvement over the discomforts of the stage-coach, which is said to have "tossed the traveler as if he were in a fishing smack upon the sea in a storm." The canals of the State greatly facilitated transportation. By means of them it was made possible to establish and maintain commercial relations with distant parts of the State which theretofore were inaccessible. The agriculturist, the miner, the manufacturer and the merchant were brought into business communication with one another, and were enabled to make an interchange of their wares, products and commodities. Farms appreciated in value, the villages of central and western New York sprang into cities and the wealth and population of the State more than quadrupled. The prosperity of the State was assured. The lakes and rivers, discovered by Hudson, Champlain, La Salle and others, were thus connected by artificial waterways, and the interior of the continent was opened up and brought into touch with foreign commerce and the argosies from across the high seas. The confines of civilization were extended westward and "peace and plenty" began to reign where desolation had made its home.

The first canal boats navigating the Erie canal carried only 40 tons and drew but two and one-half feet of water. The Erie canal was known as "Clinton's ditch," but later it was deepened to four feet, which enabled boats to carry 70 tons. In 1862 it was again enlarged so that it had a surface of 70 feet and a bottom of 56 feet, and seven feet of water, and permitted boats to carry 240 tons. Without its feeders and the Albany basin, the Erie canal is 350½ miles in length and has 72 locks, 110 by 18 feet in size. By chapter 497 of the Laws of 1851, tolls on railroads were abolished, and by constitutional amendment, adopted in 1882, tolls were also abolished on the canals. Since that time thirty-nine locks have been enlarged and one is now in the process of enlargement, to a uniform length of 220 feet each, at an average cost of about \$35,000, and thirty locks remain yet to be enlarged. The other principal canals of the State are the Champlain, Oswego, Black River, Oneida and Cayuga and Seneca. In addition to the four lateral canals, constructed by the State and sold by virtue of the constitutional amendment of 1874, the State now owns 638 miles of canals, or nearly one-fourth of the entire canal mileage of the United States.

The taxpayers of the State have been required to pay toward this extensive and valuable system of artificial waterways, from their inception down to September 30, 1893, as shown by the State Comptroller's financial canal statement for the latter year, the sum of \$60,283,693.14. Upwards of \$12,000,000, however, have been turned back into the State treasury from canal revenues for governmental purposes, so that the funds raised by taxation and invested in our canals do not exceed \$48,000,000. All other moneys expended for canal purposes have come from canal revenues, including the sum of \$51,156,936.72, interest paid on loans, which loans and interest have also been paid from canal revenues. It is apparent from the Comptroller's statement, which is the official record of the total receipts and total disbursements by the State on account of the canals from their inception down to September 30, 1893, that had the interest item of \$51,156,936.72 been avoided, as it might have been,

and had the four lateral canals, now abandoned, which were a net expense to the State of \$18,648,619.69, not been constructed, the balance sheet of the Comptroller would show the State a debtor to the existing canals in the sum of several millions of dollars. It is only by charging up the loss on unproductive, abandoned canals, and also interest on loans, procured to avoid taxation, that it is made possible for the existence of the balance of \$48,000,000 in favor of the State. This, however, is the aggregate contribution made by the taxpayers toward the purchase, construction, equipment and operation of the 638 miles of canals now in use in this State. Where else have the taxpayers made so small an investment which has proven so profitable? The property alone, had it yielded no revenue whatever, is worth several times the amount of money which has been invested in it. In the further consideration of this subject, we may, therefore, very properly treat the question of the taxpayers' investment as a valuable one, and as readily convertible into cash should the people desire to dispose of their canal property. This fact seems to have been overlooked by some who are opposed to the further development of public improvements. We are no longer perplexed at the mathematical intricacies of the probable operation of sinking fund schemes to liquidate a canal debt as were the conventions of 1846 and 1867-8, for we have no such debt, but on September 30, 1893, we had a surplus of \$782,054.67, after having collected and disbursed for canal purposes \$294,409,897.72.

Much credit is due to the men who were able to formulate and put in operation a financial policy, by which it was made possible to realize and expend for canal purposes so vast a sum of money, without resorting to direct taxation to the extent only of about \$48,000,000, and to liquidate and extinguish entirely the canal debt existing in 1846 of \$16,944,815, and that existing in 1866 of \$21,407,682.22. The gigantic work of canal construction went on and was paid for without the people feeling the cost thereof. It may be of interest to note more in detail what some of our canals have accomplished.

The State Auditor's report disclosed the fact that the total cost of the construction, enlargement and operation of the Erie canal down to 1878 had been \$76,238,938.22, and that down to the same date the Erie canal had paid into the State treasury for tolls and other revenues the sum of \$118,142,837.81, being \$41,903,899.59 in excess of the cost of its construction, enlargement and operation. It is probable that, from 1878 down to date, in consequence of the abolition of tolls in 1882, the cost of repairs and operating expenses of the Erie and Champlain canals together have exceeded the revenues derived therefrom by about \$10,000,000, and if this latter sum be deducted from the \$41,903,899.59 profits from the Erie canal prior to 1878, there still remains a surplus of over \$31,000,000. The Champlain canal has been less productive. The revenue from the Erie and Champlain together, as stated in Document No. 23, from their inception down to September 30, 1892, has exceeded the cost of their construction, enlargement and operation for the same period to the extent of \$28,919,633.16. The revenue derived from the other canals of the State now in operation, for the same period, has been exceeded by the cost of their construction, enlargement and operation by \$13,209,768.38. If this latter sum be deducted from the profits of the Erie and Champlain canals there still remains a surplus of \$15,712,141.13. The four abandoned canals cost the State \$18,648,619.69. It will thus be seen that the Erie canal, over the cost of its construction, enlargement and operation, has yielded a surplus revenue of \$31,000,000, which has been applied in support of unproductive canals in part and in part expended in liquidating the principal and interest of the canal debt and in defraying the expenses of the State government. All that the taxpayers have ever paid for the construction, enlargement and operation of the productive and unproductive canals together is the sum of \$60,283,693.14, of which upwards of \$12,000,000 have been paid back from canal revenues into the State treasury for governmental purposes.

Their investment has proven very remunerative. The State received from canal tolls and water privileges down to

September 30, 1892, \$133,555,049.03, of which sum the Erie canal down to 1878 had contributed \$118,142,837.81, and since that time has contributed between \$8,000,000 and \$9,000,000. In addition to the sum of \$133,555,049.03 received by the State as tolls and other canal revenues, the vast tonnage of merchandise passing from the seaboard to the interior, and of agricultural and other products passing from the interior to the seaboard along our canals has contributed in money for freights to the boatmen upwards of \$225,000,000. This is shown by the official reports of the Auditor of the Canal Department, of the Superintendent of Public Works and of the State Comptroller. In excess of tolls received by the State, there were received by boatmen for canal freights: In 1837, the sum of \$1,890,773; in 1840, the sum of \$2,419,802; in 1845, the sum of \$1,785,280; in 1850, the sum of \$2,489,489; in 1855, the sum of \$3,036,343; in 1860, the sum of \$5,039,853; in 1865, the sum of \$4,766,066; in 1870, the sum of \$4,941,410; in 1875, the sum of \$3,273,105; in 1880, the sum of \$4,833,526; in 1882, the sum of \$3,373,154. The total amount of canal freights so received, in excess of tolls, for forty-seven years, commencing with 1837 and ending with 1882, was \$170,038,674, and the amount of tolls received by the State for the same period was \$120,987,763. The total amount of tolls and freights for that period was \$291,026,437. In the year 1871 canal freights were \$7,679,049, and in the year 1872 were \$7,576,300 in excess of tolls. Since that time the sediment and obstructions in the canals have seriously interfered with their carrying capacity and the tonnage thereon has been somewhat smaller and the freights have been lower. It is estimated that the receipts for canal freights since 1882 have averaged \$4,000,000 annually, and that the receipts for canal freights and passenger rates from 1826 to 1837 averaged not less than \$1,500,000 annually. If the receipts for canal freights and passenger rates prior to 1837 and the receipts for canal freights since 1883 be added to the \$170,038,614 received for canal freights from 1837 to 1883, altogether they make a grand total of upwards of \$225,000,000 received by the boatmen for canal transportation in excess of the

\$133,555,049.03 paid into the State treasury for canal tolls and water privileges. It is also estimated that there have been contributed by canals to merchants, warehousemen and forwarders in commissions and storage upwards of \$110,000,000. By adding \$133,555,049.03, received by the State for tolls and water privileges, to the sum of \$225,000,000, received by boatmen for freights, and to these the other sum of \$110,000,000, received by merchants, warehousemen and forwarders, we get the grand total of more than \$468,555,049.03, which has been contributed by the vast tonnage of commerce to the wealth of the State of New York, at an expense to the taxpayers of only \$60,283,693.14, a part of which has been refunded.

The vast revenue so received has not found its way into the pockets of foreign bondholders, but has been expended by the State and boatmen and other persons identified with canal transportation wholly within the State. Commerce has thus paid tribute to the enterprise of New York and yearly adds millions of dollars to its wealth.

The annual cash receipts from tolls and freights on the canals for many years exceeded the entire State taxes, levied for all purposes, as may be seen from the following statement: The State taxes for 1859 were \$3,512,284; canal tolls and freights for 1859 were \$3,665,806; the State taxes for 1860 were \$5,440,640; canal tolls and freights for 1860 were \$8,049,450; the State taxes for 1861 were \$5,586,848; canal tolls and freights for 1861 were \$9,369,378; the State taxes for 1862 were \$6,884,193; canal taxes and freights for 1862 were \$10,780,431; the State taxes for 1863 were \$7,272,274; canal tolls and freights for 1863 were \$9,065,005; the State taxes for 1864 were \$7,880,249; canal tolls and freights for 1864 were \$10,939,609. A similar condition existed for some time prior to 1859 and subsequent to 1864. It may be safely stated that for fully half the time since the completion of our canals the revenue in tolls and freights derived annually therefrom has exceeded the annual cost of the State government. Noiselessly have flowed on these rivers of gold, enriching near and far all parts of the State.

Among the evidences of this are the flourishing cities that have sprung up along with the development of this inland commerce. New York, Brooklyn, Albany, Troy, Utica, Syracuse, Rochester and Buffalo, in commercial affairs not inferior to the maritime cities of Southern Europe, and unrivalled by the cities of any other State in the Union, accentuate the wisdom of the policy which conceived and dominated the construction of the State's artificial waterways, and thus laid the foundation for her commercial supremacy. They speak in no uncertain language of prosperity attained as a result of canal transportation. They have become absorbing centers of the agricultural products of the State, and have made it possible for the rural counties to attain a degree of thrift and prosperity unsurpassed by those of any other State. Every village and hamlet in this great State feels the pulsation of industrial life that throbs in these great centers. Whatever tends to advance the interests of the latter promotes the welfare of the former, and no one thing is so likely to advance such interests as the increase of the commerce of our inland waterways.

These superb cities, with their humming factories, spacious warehouses, wealthy banks, large libraries, comfortable houses and palatial residences, are the pride of the people of the State and contribute much to its imperial greatness. They comprise more than one-half of our population and their vast industries furnish employment for thousands of persons who otherwise would be unable to secure employment in this State. The larger and wealthier they become, the greater will be their demands upon the products of the rural counties and the greater will be the proportion of the State taxes which they will be required to pay. Erie, Kings and New York counties now pay sixty-two per cent. of the State taxes. These three counties, together with Albany, Rensselaer, Oneida, Onondaga and Monroe counties, pay about three-fourths of the State taxes. The thirty-one counties touched by canal transportation pay about eighty-seven per cent. of the State taxes, while the other twenty-nine rural counties pay but thirteen per cent. thereof.

Several of these latter counties are receiving from the State more money, as school funds, than they are paying for all purposes into the State treasury. To illustrate, the county of St. Lawrence contributed toward the expenses of the State government for fifteen years, commencing with 1863 and ending with 1877, the sum of \$268,968.97; and St. Lawrence county received from the State treasury for the same period for the maintenance of its public schools the gross sum of \$807,670.68.

Delaware county for the same period contributed toward the expenses of the State government the sum of \$143,837.14, and Delaware county for the same period received for the maintenance of its schools the gross sum of \$461,904.63. Other similar instances might be given. For the same period of time New York City contributed to the State treasury \$9,019,045.64 more than it received from the State treasury. It thus appears that some counties in times past have drawn out of the State treasury for school purposes alone three times as much as they contribute for all purposes into the State treasury.

The amount of money so received by twelve of such counties in excess of the total taxes paid by them to the State for all purposes in 1894, is \$59,940.16. Thus it would appear that the rural counties can ill afford to oppose canal improvement, which is of such vast importance to the commercial interests of the State, and which is being advocated by the principal taxpaying counties of the State. It does not seem possible that our people can fail to comprehend the import of the movement, going on the world over, to bring all lands in touch with water transportation. After the canals have more than paid for themselves in tolls to the State, and after the people of the State have received upwards of \$225,000,000 in freights in addition to the tolls received by the State, and in addition to the \$110,000,000 received by forwarders, commission merchants and warehousemen, and after our unparalleled industrial and commercial development, which has resulted largely from our inland water transportation, it would seem as though every citizen in the State of New York now understood the in-

estimable benefits that have been received by all the people from our vast system of artificial waterways. No county is so distant from these great arteries of commerce but that it is benefited thereby. The merchandise it consumes is cheaper, and the products it sells are more valuable than they would be otherwise, were it not for the minimizing of rates of transportation between such county and the metropolis.

The canals are a further advantage to all the persons within the borders of the State by their regulation of railroad charges throughout its limits. This fact was very clearly stated by Mr. George R. Blanchard, vice-president of the Erie railroad, in his testimony before the Hepburn railroad investigating committee, in 1879. He said:

"The State holds within its grasp the great controller of the freight rates within its border, to wit, the canal. There is not a town that is not affected more or less within the whole State, from the extreme northwest to the extreme southwest corner of it, by the canal policy and rates of this State. Every rate we make to or from Buffalo in competition with the Erie canal has more or less influence to every point this side of Buffalo.

"I might use an illustration; upon the west end of our line, for instance, is Salamanca, upon the Dunkirk division. The rate to that point is limited by the canal rates and the rates upon Lake Erie to Dunkirk, plus the railroad rates back to Salamanca, which is not upon the line of the canal; it is remote from it; it is upon the southern border, but we are limited to the lower of the rates I have cited. Still further, if the canal makes a rate to Buffalo, and if we make a rate to Buffalo to compete with the canal, the rate only being three cents per one hundred pounds more to stations on our western division, by the tariff I have submitted, than to Buffalo, the rate immediately falls down to within three cents of the Buffalo rate which is made by the canal, and in this way the canal influences our rates where it does not limit them."

The State Railroad Commission, in its report of 1885, says that, "No better illustration is possible of the wisdom upon the part of the State of maintaining in efficient condition its waterways." The board has taken occasion in each of its annual reports to comment upon this subject, and

again repeats what it said in its second annual report (page 12), the following language:

"Water competition is acknowledged by railroad managers to be the only competition that is uniform and effective in fixing rates of transportation for the commerce of the country. The canal system of this State regulates the carrying price over and through the State. Therefore, whatever may be said for or against railroads competing with each other, there can be no doubt but that it is of vital interest to the people of the State to jealously guard our great waterways, which by a constitutional amendment have been made forever free."

The United States Senate committee, consisting of Senators Windom, Sherman, Conkling and Davis, appointed to examine into transportation, in the course of which they visited and inspected the Erie canal, say that—

"The chief instrumentalities by means of which those (competitive) forces will exert their power are the Mississippi river on the one side, and the northern water routes (comprising Great Lakes and Erie canal) on the other. Both routes constitute indispensable parts of one grand system. Each is needed to regulate the other, and both are regulators of railway charges. Each has some advantages which the other lacks, and some impediment which the other has not; but on the whole their trade forces, commercial facilities and economic capacity for cheap transportation will be so evenly balanced as to insure a healthy, active and permanent competition. But the competitive power and influence of two great contestants (the water and railroad lines) will not be limited to any one locality, but will extend to nearly every State in the Union, and will hold in check and regulate the charges on every railroad from the interior to the seaboard. The wide sweep of competitive influences exerted by the Erie canal is not generally understood or appreciated. You would doubtless be surprised, Mr. President, if I told you the 'little ditch' which runs through your State holds in check and regulates nearly every leading railroad east of the Mississippi river, and that it exerts a marked influence on the cost of transportation over all the country, extending from the interior of the Gulf States to the St. Lawrence river, and from the great plains to the eastern foothills of the Rocky mountains to the Atlantic ocean. And yet such is the fact."

Ex-Governor Horatio Seymour, in a letter dated February 27, 1882, said:

"So long as they (canals) are kept in good condition, we shall be saved from the evils of combinations or unjust discriminations against our State. If they did not carry a pound of freight it would be wise to keep them in order, so that they would be ready for use to defeat unjust and hurtful charges against the business of New York. The chief element in the prosperity of every State or nation is the economy of transportation of persons and property. It is the most marked fact in the difference between civilization and barbarism."

In 1891, Mr. Depew said: "Canals compel lower rates of transportation than any railroad in the world." But it seems unnecessary to add further authorities on this point. Water transportation always has lowered and ever will lower railroad transportation and promote civilization. A comparison of canal rates with railroad rates, since the construction of railroads, proves that the canals have saved the State many millions of dollars in freights. In the year 1893 the canals transported nearly one and three-fourths millions tons of freight, either produced or consumed in the State. If we estimate the saving of charges thereon at three cents per hundred pounds, due to the competitive influence of the canal upon freight rates, we find that there has been saved to the people of the State upwards of a million dollars. That is another direct gain to the State. In addition thereto the railroads have been forced, by reason of the competitive influence of the canals, to carry millions of tons of freight either produced or consumed in the State at a lower rate, which is an indirect gain to the State of several millions of dollars annually. The canals benefit all parts of the State, as appears from the clearances of canal boats and tons of freight carried, from the following principal towns along the line of the canals, for the year 1893:

OFFICES.	TOTAL TONS.
From Albany	141,802
From West Troy	597,765
From Syracuse	391,703
From Rochester	136,744
From Tonawanda	550,864
From Buffalo	1,586,238
From Waterford	367,459
From Whitehall	319,767
From Oswego	92,634
From Geneva	38,761
From Boonville	80,336
From Rome	26,974
Total	4,331,047

Of the foregoing amount, 1,694,735 tons were way freight, either produced or consumed wholly within the State. The canals have always carried a vast amount of domestic freights. The way freight, either produced or consumed wholly within the State and transported by the canals—

In the year 1840 was.....	617,454 tons
In the year 1850 was.....	624,384 tons
In the year 1860 was.....	1,421,602 tons
In the year 1870 was.....	2,077,038 tons
In the year 1880 was.....	1,126,075 tons
In the year 1893 was.....	1,694,735 tons

The saving in freights on tonnage, either produced or consumed within the State, and transported by our canals, has repaid the people of the State many times over for the cost of their construction. All of the principal business houses in Utica, Rome, Syracuse, Oswego, Rochester, Lockport and Buffalo and intermediate places are receiving and shipping their merchandise this year by canal in greater quantities than has been done for the past twenty years. There are upwards of seventy-five such firms in Rochester alone. The amount thus saved to the consumers of such merchandise is shown by a statement recently made by Donald Dey, president of the Syracuse Business Men's

Association, who stated that the cost of transportation by canal from New York to Syracuse was nine cents per hundred pounds, including all charges for handling such merchandise, whereas the railroads are charging thirty-five cents per hundred pounds from New York to Syracuse. This makes a saving of five dollars and twenty cents on each gross ton received by canal. It is said that there are now over thirty steamers plying between different points on the Erie, Oswego and Champlain canals, engaged wholly in transporting passengers and local freights. It thus appears that the canal commerce, carried on wholly within the State and for the benefit solely of the people of the State, is decidedly on the increase, notwithstanding the unimproved condition of our canals.

The Committee on Canals in the Convention of 1867, in their report, say that, "It will be an unfortunate day for the people of this State when they adopt and act upon the idea that the canals have fulfilled their mission and that we have outgrown their important use"; and they further say that, "they cannot so underrate the patriotism and intelligence of the people as to believe they will prefer a policy that will doom the canals to neglect and destruction in order to escape taxation." As well might the people of the State become indifferent to our republican institutions, under which they enjoy the blessings of civil and religious liberty, as to become indifferent to the preservation and efficiency of our inland waterways, by means of which, in part, the prosperity of the State has been achieved and its wealth acquired.

The public improvement of our artificial waterways involves the only important question of economics before this Convention. The production and distribution of wealth largely depend on the facility and cheapness of transportation. As the cost of transportation decreases, both production and consumption increase and man's natural and acquired wants are more abundantly supplied. New industries spring up wherever the transportation problem is minimized by competitive effects of water communication with the marts of trade. It is a maxim of political ethics

that trade enriches nations. So does it enrich a great State like New York that has such natural resources and such a variety of industrial and commercial interests. Its commerce is almost as extensive as that of some independent governments and it is as greatly concerned in the transportation problem as are they. Economy in the transportation of agricultural products to cities, and of merchandise to the country, enriches both urban and rural communities. In so far as the cost of transportation may be eliminated, that far at least may be increased the purchasing power of the consumer. When it costs \$40, \$60, \$80 and \$100, as is said was the case before the completion of the Erie canal, to transport a ton of merchandise from New York city to western New York, and thirty, forty, fifty and sixty cents to transport a bushel of wheat from the Genesee Valley to New York city, much of the selling price of such merchandise and wheat was made up of freights, and the demand therefor and supply thereof were kept within the smallest possible compass. Such high rates of transportation were serious obstructions to trade and to an interchange of commodities. That has been one of the most serious hindrances to the development of some of the New England States. The early development of our artificial waterways did away with such obstructions and hindrances in this State. Its system of inland and foreign commerce surpassed those of every other State.

Its natural waterways include Lake George, and Cayuga, Oneida, Seneca, Crooked and Chautauqua lakes, the Hudson, Oswego, Black and East rivers, a part of Lake Erie and the St. Lawrence river, a portion of the Atlantic coast, one-half of Lake Ontario and Lake Champlain and the Niagara river and many other small inland lakes and rivers. The more important of these have been connected by artificial waterways. All the wealth of Homeric imagery might well be employed in describing these picturesque lakes, charming rivers and intervening artificial waterways that bring the distant portions of this great State in touch with the commerce of the world. It is said that in 1890 the total vessel tonnage entering and clearing at New York

and at Buffalo gave them respectively the second and sixth positions in the list of the greatest commercial ports in the world.

The Erie, Oswego and Champlain canals have made such commanding positions possible by enabling the State to control the carrying trade of the northwestern States and territories. These important commercial ports afford unusual opportunities for the exchange of domestic and foreign commodities, and our inland system of water communication renders them accessible to producer and consumer alike in more than half of the counties of the State. But our canals ought to be enlarged and improved. Since their enlargement in 1862 little effort has been made to improve their condition. The Federal Government, which declined to assist in their construction, and has since repeatedly declined to aid in their maintenance, cannot be expected to render any substantial aid in their improvement.

Jefferson, Madison, Monroe and Van Buren have denied the power of Congress, under the Federal Constitution, to grant such aid. Although, by an application of the principles laid down in *Genesee Chief* (53 U. S., 443), *The Eagle* (75 U. S., 15), *The Montello* (87 U. S., 430), and *Ex Parte Boyer* (109 U. S., 629), the admiralty jurisdiction of the courts of the United States has been extended to the navigable waters of inland canals, the canals themselves still remain within the sovereign control of the States which own them. The grant of power to Congress "to regulate commerce with foreign nations and among the several States and with the Indian tribes," does not authorize the General Government to usurp the functions of a State in the management and development of its internal affairs. Appropriations for post-roads and for the improvement of rivers and harbors and for coast defenses are the only expenditures which Congress has ever made to facilitate internal commerce.

Before the Federal Government could be persuaded to undertake the improvement of our waterways, Congress would require, as a condition precedent, that they be turned over to the Federal Government. Such was the deliberate

judgment of the National Board of Trade, held in Buffalo, in December, 1870, which resolved, among other things, as follows: "That as a condition precedent to the undertaking of such work (enlargement of the waterways of New York) by the General Government, they shall by proper legislation on the part of the State of New York be divested of all individual and State ownership and control, and their management be vested in trustees, one of whom shall be appointed by each of the States of Massachusetts, New York, Ohio, Michigan, Indiana, Illinois and Wisconsin, and one by the President of the United States." A similar proposition was considered by the National Board of Trade, held in New York, in 1872. Before the General Government entered upon the improvement of the Fox and Wisconsin rivers ship canal, it extinguished all corporate and State ownership and control thereof. Any scheme of improvement, involving on the part of the State a surrender of its exceedingly valuable and productive artificial waterways to the General Government ought not to receive a moment's consideration in this convention. Such a proposition ought to be discountenanced by every loyal citizen of the State. The venerable George S. Hazard, of Buffalo, once said, "such a proposition is not complimentary nor courteous to the proverbial sagacity and commercial reputation of the citizens of the State, and would not be entertained for a moment by the people." Governor Seymour, Hon. William M. Evarts, Hon. George Clinton, Captain Marcus M. Drake, Mr. William E. Cleary, Mr. E. M. Clarkson, Mr. Frank S. Witherbee and other prominent exponents of the State's canal policy, for well-founded reasons, have opposed the proposition of relinquishment of our waterways to the General Government whenever that has been advocated. Samuel B. Ruggles, General Hiram Walbridge and other far-seeing and public-spirited citizens have in times past advocated canal improvement by the State, on account of the inestimable benefits of our canal system to the people of the State. The voices of the living, as well as respect for the opinions of the dead, should move us to perpetuate, and not make shipwreck of the State's commercial fortunes.

If the canals were turned over to the General Government, the cost of their improvement and the improvement of upwards of two thousand miles of other canals in the United States, which interested Congressmen would insist upon being done at the same time, would be a greater burden to the State than the cost of improving our canals by the State alone. Nothing is to be gained, but everything is to be lost, by the abandonment of our canals to the General Government. The State ought to proceed with their enlargement and improvement at once, and this can be done without unduly burdening the taxpayers. The aggregate equalized valuation of the property of the State for the year 1893 was \$4,038,058,949. To raise a fund of \$1,000,000 for canal purposes it would be necessary to levy a tax of one-fourth of one mill on each dollar's valuation of the aggregate property of the State. Such a tax rate, however, would yield something more than \$1,000,000, so that in making estimates on the basis of a tax rate of one-fourth of one mill, we are providing for a fund a little in excess of \$1,000,000.

Every thousand dollars of the assessed valuation of the property of the State would be taxed but twenty-five cents in order to raise a fund of \$1,000,000, or be taxed but a dollar to raise the sum of \$4,000,000, or be taxed but two dollars to raise the sum of \$8,000,000, or be taxed but three dollars to raise the sum of \$12,000,000. The farmer, whose property is assessed at \$1,000, would contribute a pound of butter or a dozen of eggs, worth twenty-five cents, toward raising the canal fund of \$1,000,000, or but four pounds of butter, or four dozen of eggs, worth one dollar, to raise a canal fund of \$4,000,000. He would save more than the value of such a contribution in freights on a single cargo of agricultural products destined for the seaboard.

It has been authoritatively stated that, if there were no canals, or if canals were not in operation, the cost of transporting grain to market would be increased by at least two cents on the bushel. This statement seems to be warranted from the fact that at one time, in the summer of 1894, while the boatmen were carrying grain at three cents per bushel from Buffalo to New York, the railroads demanded five

cents per bushel. It appears from the documents of the Constitutional Convention of 1867 that railway charges averaged \$4.42 per ton, and canal charges averaged \$1.88 per ton. In 1878, a paper, advocating the farming interests of the State, said, "the moment the water begins to freeze in our canals, up goes the local rate of freight on the railroads about 50 per cent. A farmer having 500 bushels of corn to sell is told that it will cost him twelve cents per bushel more to ship it now than it would cost him if the Erie canal was in running order. The loss to a farmer on 500 bushels of corn would be \$60, while his additional annual tax on \$3,000 worth of land to support the canals would be only thirty-three cents. Thus it appears that he would save \$59.67 on every 500 bushels of corn that he raises on \$3,000 worth of land." Thus agricultural interests demand that the canals be maintained and improved.

Mr. C. W. Adams, State Engineer and Surveyor, in response to a resolution of the Convention, calling for information, has estimated the cost of improving the principal canals of the State as follows: To obtain nine feet of water in the Erie canal, cost of work, \$4,810,000; for land damages, \$500,000; total, \$5,310,000. To obtain nine feet of water in the Oswego canal, cost of work, \$1,133,000; for land damages, \$75,000; total, \$1,208,000. To obtain seven feet of water in the Champlain canal, cost of work and land damages together, \$2,300,000. The total amount required for such improvements is estimated at \$8,810,000. Sixty-two per cent. of this amount would be paid by three counties, namely, Erie, Kings and New York, and eighty-seven per cent. of this amount would be paid by the thirty-one counties directly in touch with canal transportation. These estimates are based upon the Seymour plan of improvement, which is generally favored throughout the State, and contemplates the deepening of the canals one foot and the elevation of the banks one foot, and thereby secure an additional depth of two feet of water. Boats then navigating the Erie and Oswego canals would be enabled to carry 300 tons, or about 10,000 bushels of wheat, where they now carry but 240 tons, or 8,000 bushels of wheat, and

would also be enabled to make ten trips a year, where now they make but eight trips. A similar result would follow the proposed improvement of the Champlain canal. The Erie and Oswego canals have not been cleaned out since their enlargement in 1862, and it is said that there is an accumulation of mud, grass and debris a foot in thickness in the bottom of these canals.

The carrying capacity and speed of vessels are thus seriously obstructed, and in the meantime, the commerce of the West is being diverted to other channels, or to more speedy routes to the seaboard. Great railway corporations, outside of New York, are increasing their facilities for such transportation and are seeking to get control of the commerce between the interior and the seaboard. Canadian waterways are also being improved. In the year 1892 the surplus products exported from the Atlantic ports were as follows:

Flour—From New York, 6,034,260 barrels; from Boston, 2,090,720 barrels; from Philadelphia, 1,843,647 barrels; from Baltimore, 3,661,623 barrels; from Montreal, 601,243 barrels; from New Orleans, 227,432 barrels.

Wheat—From New York, 45,259,966 bushels; from Boston, 6,375,123 bushels; from Philadelphia, 9,994,024 bushels; from Baltimore, 16,661,559 bushels; from Montreal, 8,379,562 bushels; from New Orleans, 14,207,443 bushels.

Corn—From New York, 18,293,353 bushels; from Boston, 2,811,277 bushels; from Philadelphia, 19,454,590 bushels; from Baltimore, 18,995,907 bushels; from Montreal, 1,763,854 bushels; from New Orleans, 7,380,678 bushels, and from Newport News a large quantity of cereals. This statement clearly shows that we are not holding that commerce, but that it is slipping away and seeking other routes to the seaboard. Such a result is to be deplored and will be of incalculable loss to the State. A further loss is likely to occur from the divergence of commerce to the Hennepin canal, which Illinois is pushing forward from Lake Michigan to connect with navigable waters, flowing into the Gulf of Mexico. The Canadian water

routes are being enlarged and extended. The enterprise thus exhibited in this country, as well as that exhibited by foreign countries in perfecting inland canal commerce, should spur us on to overcome the *vis inertiae* of such of our people as would suffer our canals to be filled up and our commerce to be destroyed. Failure in this regard would be almost a dereliction of duty. The great commercial interests of the State, hitherto fostered by a policy of high statesmanship, demand at our hands deliberate consideration and wise action. Such consideration and wise action can be exhibited in no better manner than by continuing such wise policy and by making provision for the needed improvement of our canals, which are the State's principal highways of commerce. The Superintendent of Public Works states, in his report for the year of 1893, that of the total tonnage of 4,331,963 tons, carried on the canals that year, "the Erie canal carried 3,235,726 tons, the Champlain canal carried 848,965 tons, the Oswego carried 92,634 tons, the Cayuga and Seneca carried 38,761 tons, and the Black River canal carried 115,877 tons." In 1892, the canals carried 23.17 per cent. of the entire amount of grain received at New York, and in 1893 the canals carried 39.53 per cent. of the entire amount of grain received at New York.

Canal tonnage will continue to increase, if the canals be improved, as contemplated by the Seymour, or other equally meritorious plans. The canal prism should be enlarged, so that it will have a depth of nine feet of water and a width of fifty-six feet at the bottom and a width of seventy feet at the top. Possibly the bottom of the prism ought to be made as great as the top of the prism and the sloping banks converted into vertical banks. The details of the plan of enlargement, however, may properly be intrusted to competent engineers, under the supervision of the executive and legislative departments of the State Government. These vast public improvements, if undertaken, will afford remunerative employment for thousands of worthy citizens, now unemployed, and tend to restore industrial enterprise throughout the State. The eight or nine millions of dollars required for such improvements, will serve the double pur-

pose of furnishing labor for the unemployed and of increasing the carrying capacity and productiveness of our canals.

And, in addition to this, when it is remembered that the revenue from canal freights averages about \$4,000,000 per annum, which enriches every village, town and city from Lake Erie, Lake Ontario and Lake Champlain, down the Hudson river to Long Island Sound, it would be a very short-sighted policy, to fail to appropriate an amount, equal to two years revenue, from the canals for their permanent improvement, and especially so, when such improvement will tend to increase such revenue. In addition to all this, the State has but to pay back for the canals a small part of the money, which it has hitherto received from them. The light of experience should teach us, that our waterways have been the State's most remunerative investments.

With a history unparalleled by that of any other canal system in the world, and with the visible evidences of its usefulness, productiveness and importance to be seen in every town from Brooklyn to Buffalo, and from Troy to Rouse's Point, it would appear that the proposition, for which we are contending in this Convention, has been conclusively demonstrated. After three-quarters of a century of commercial growth and supremacy, we might expect that even the eyes of the blind would be opened and they be made to see the glory of the achievements of our inland water commerce.

We are now dealing with history, with demonstrated efficiency, with incontrovertible facts, and as intelligent beings, endowed with reasoning powers, we should cast off the mantle of prejudice against the canals and yield to the claims, which they are making upon our consideration.

We ought to remove the present constitutional limitations, prohibiting the creation of a debt for their improvement, and provide at once for such improvement. We should strive to perpetuate, rather than destroy, the commercial interests of the State. We should go forward with public improvements rather than adopt a retrogressive policy.

We should preserve and improve our canals, which were conceived, constructed and have been maintained by three generations of loyal, enterprising and patriotic citizens.

Our canals have challenged the admiration of the whole world. By opening up commerce between the interior and the seaboard, they have done more to make this a "mighty and puissant nation," than any other commercial agency, that has operated in its favor. President Woolsey in his "Law of Nations" remarks that "an interior nation has a servitude along nature's pathway, through the property of its neighbors, to reach the great highway of nations." This has been called "*jus transitus*," or "*jus passagii innoxii*." Grotius, Vattel, and other publicists have not agreed, as to whether this was a perfect or an imperfect right. It is secured, however, over most European rivers by treaty.

It may yet be claimed by the seven interior states, bordering on the Great Lakes, that long continued use of our artificial waterways, as a highway of commerce to the open sea, though at first an imperfect right, has ripened into a more perfect one, which this State is in honor bound to respect, as long as such States comply with the conditions imposed, and pay the freights exacted by our boatmen. Although our artificial waterways are not "public" in the sense in which that term is used by Bracton, in the statement that "*publica vero sunt omnia flumina et portus*," yet they have come to be regarded as possessing a quasi-public charter, since they began to draw to themselves the commerce, passing between the East and the West and to be brought within the admiralty jurisdiction of the courts of the United States. The interior States may properly claim a servitude along our waterways, extending, as they do, on isothermal lines, from the Great Lakes to the ocean.

The gifted and eloquent Roscoe Conkling once said that "man shrinks from crossing isothermal lines, and the products of the earth will not endure different zones and climes; the breadstuffs of the West perish in the tropics, and the wheat and corn from northern prairies will not bear transportation through the delta of the Mississippi and the Gulf of Mexico. Tracks across the continent, on which travel

and traffic may sweep from sea to sea, stayed by no obstacle which science can surmount, are as inevitable as the decrees of fate."

The Erie and Oswego canals comply with these natural laws for the transportation of agricultural products.

Shortly before his death, he also said: "I believe in the maintenance, enlargement and freedom of this great artery of commerce (Erie canal) for reasons too many to be stated. The day will be ill-starred, when the people, or Legislature, shall turn deaf ears, or blind eyes, to whatever honest demands it makes on the State, or its revenues."

The history of the Erie canal is a history of progress. It is one of the great achievements, which has been deemed worthy of record in the progress of civilization. Let us accentuate the wisdom of that achievement, and liberally provide for its perpetuity.

More than a hundred years ago, Alexander Hamilton declared that "a prosperous commerce is now perceived and acknowledged by all enlightened statesmen, to be the most useful, as well as the most productive, source of national wealth, and has accordingly become a primary object of their political cares." To his creative genius are we indebted for this and many other political maxims in the building up of this Empire State.

In speaking of the populous East and the productive interior States, bordering the Great Lakes, and the commercial possibilities that might be developed between them, Daniel Webster in 1837 said:

"These great lakes, stretching away many thousands of miles, not in a straight line, but with turns and deflections, as if designed to reach, by water communication, the greatest possible number of points through a region of vast extent, cannot but arrest the attention of any one who looks on the map. They lie connected, but variously placed; and interspersed, as if with studied variety of form and direction, over that part of the country. They were made for man and admirably adapted for his use and convenience. Looking over our whole country, comprehending in our survey the Atlantic coast, with its thick population, advanced agriculture, extended commerce, its manufactures and mechanic arts, its varieties of communication,

its wealth and its general improvements; and looking then, to the interior, to the immense tracts of fresh, fertile and cheap lands, bounded by so many lakes and watered by so many magnificent rivers, let me ask if such a map was ever presented to any statesman, as the theatre for the exercise of his wisdom and patriotism? And let me ask, too, if any man is fit to act a part, on such a theatre, who does not comprehend the whole of it within the scope of his policy, and embrace it all as his country?"

Hitherto this State has had a sufficient number of patriotic and public-spirited citizens, alive to all these possibilities, adverted to by Mr. Webster, to control its commercial policy and to enable it to convert these possibilities into actualities greatly to its own advantage, by the establishment and maintenance of an artificial waterway from the Great Lakes to the Hudson, whereby it has drawn to itself the vast commerce, passing between the interior and the sea-board.

If the map referred to by Mr. Webster in 1837, presented a theatre for the exercise of wisdom and patriotism on the part of the statesmen of that day, how much greater wisdom and loftier patriotism should be exercised today on the part of those who act a part on this same theatre, after half a century's development in all the ways made possible by a progressive civilization. Scores of enterprising villages, flourishing cities and immense grain-producing States have been developed out of the interior lakes region since 1837.

The commerce between this region and the Atlantic ocean will continue to increase as time goes on.

Self-interest, as well as State aggrandizement, require on our part that every reasonable effort be made to hold that commerce, rather than suffer it to be diverted to other States. Such has ever been the candid judgment of our most patriotic citizens.

The unique position occupied by New York enables her to control and exact tribute from this vast commerce passing between the Great Lakes and the ocean. The Hudson and the Mohawk rivers have cut their way through the Appalachian mountain range to central New York, so that there is a natural waterway nearly half the distance from

the Atlantic ocean to Lake Erie. The remaining distance consists of a level tract of territory without barriers to canal construction. Nature has thus done everything for the State to enable her to connect by artificial waterways the Great Lakes with the ocean.

Clinton and others foresaw these natural advantages and fully appreciated the great revenue that would accrue to the people of the State from their utilization. Their unremitting advocacy of measures to utilize these natural advantages prevailed and has enabled the State to control the vast tonnage passing between these lakes and the ocean, and to exact heavy tribute therefrom. Hitherto such tribute has added millions of dollars to her wealth, built her towns and cities and enabled her to maintain her commercial supremacy. Let us not be among the first to whom the State, failing to receive aid for the improvement of her waterways and despairing of her commercial supremacy, may turn and exclaim, in the language of the expiring Cæsar: "*Et tu Brute.*" Rather, let us pursue a more public-spirited and enlightened policy and now make such liberal provision for the improvement of the waterways of the State that the commercial supremacy of the State will be assured for generations yet to come.

NOTE

The campaign before the electors of the State on the Canal Referendum measure of 1903, known as chapter 147 of the Laws of 1903, was one of the most spirited ever witnessed and was participated in by many of the most prominent citizens of the commonwealth. Governor Benjamin B. Odell, Jr., who had given the measure the weight of his official approval on April 7, 1903, spoke in favor of its approval at country fairs during the fall of that year. His speeches did much to allay opposition in rural communities, which quite generally were opposed to the expenditure of so large a sum for canal improvement. The Honorable George Clinton of Buffalo, who had a large part in formulating the Referendum measure and in advocating it before legislative committees, was untiring in its advocacy in various parts of the State. His long and intelligent devotion to canal affairs had won for him the admiration of the commercial interests of the State. No speaker was more sought after and no one rendered greater service in that eventful campaign.

Senator Henry W. Hill of Buffalo, who took a prominent part in the long fight in the Senate in the final passage of the bill through that body, was frequently called upon to speak in its behalf. He addressed audiences in the Chamber of Commerce in Buffalo on May 8th; at Lockport on July 11th; at Lily Dale on August 22d; at Lyons on September 24th; at the Historical Building, Buffalo, before the Buffalo Historical Society, on October 4th; at Troy on October 5th; at Delmonico's in New York City on October 6th; at Dunkirk, October 14th; at Cohoes, October 16th; at Brooklyn, October 25th; at Lockport, October 29th; at Binghamton, October 30th; at Buffalo again, October 31st, November 1st, and November 2, 1903; and at still other places in the State during the long campaign. His remarks were naturally varied according to the locality, and adapted to the audiences he was addressing. The main discussion, however, of a historical character, was substantially as printed in the following pages.

SPEECH ON
THE CANAL IMPROVEMENT
REFERENDUM MEASURE

BEING CHAPTER 147 OF THE LAWS OF 1903

It is auspicious for commerce that its claims are to be presented and its far-reaching interests considered in this forum. The discussion of such matters in popular assemblies cannot fail to awaken public interest in their proper solution.

The propriety of this discussion is still more apparent in view of the fact that at the next general election there is to be submitted to the electors of the State a most momentous commercial question.

The Constitution of this State ordains that, except in cases of casual deficits, or to repel invasions, "no debts shall be hereafter contracted by or in behalf of this State, unless such debt shall be authorized by a law, for some single work or object, to be distinctly specified therein; and such law shall impose and provide for the collection of a direct annual tax to pay, and sufficient to pay, the interest on such debt as it falls due, and also to pay and discharge the principal of such debt within eighteen years from the time of the contracting thereof. No such law shall take effect until it shall, at a general election, have been submitted to the people, and have received a majority of all the votes cast for and against it at such election."

In compliance with this constitutional mandate, the Legislature at its last session passed the Davis-Bostwick Refer-

endum Canal Bill, authorizing the issue of one hundred and one million dollars of bonds, the proceeds of which are to be used for the construction of a thousand ton barge canal from the Great Lakes on the west and Champlain on the north to the Hudson, provided such law receive a majority of the votes cast for and against it at the general election in November. The people in their sovereign capacity have thus reserved unto themselves the ultimate disposition of all propositions involving the creation of a debt in excess of one million dollars for any public improvement and the wisdom of this referendum constitutional provision is not open to question. This imposes, however, on the electors of the State the responsibility of an intelligent and proper solution of the matters thus submitted to them. Accordingly public discussion and individual investigation are both essential to a proper solution of such important questions of state as are thus submitted under the Constitution to the people for their decision. This is true of nearly all referendum propositions, but it is especially so of the pending referendum measure, which is regarded as of the utmost importance to the commercial development of the State.

The question at issue is a large one and merits careful investigation and wise decision. If it were a mere academic proposition to be decided either way without materially affecting the well-being of the State, little harm would result from the cursory or flippant manner in which it has been discussed in some parts of the State. But great public questions are not to be treated thus lightly. It may be sport for the press in some sections to rail at "the Clinton ditch," but it must be remembered there have been those who have declared that New York's internal waterways "have contributed more to the advancement of commerce and civilization than any similar work recorded in history."¹

The history of New York has been a history of unparalleled progress in commerce, manufactures and the development of the liberal arts. Primarily its existence and far-reaching commerce has contributed much to its phenomenal

1. Sweet, *Doc. Sketch N. Y. Canals.*

advancement in all that makes up a prosperous people and a progressive civilization. Its founders were far-seeing, broad-gauged and liberal-minded statesmen. They believed that facility and economy in transportation of agricultural, mineral and manufactured products were of prime importance in the development of a State. They realized that a saving in freight rates was a gain both to the producer and the consumer and made it possible for industries to thrive and flourish wherever those conditions existed. The business interests of the world are conducted on close margins and with small profits. A small saving in transportation charges makes some enterprises successful, where others, not within the range of the competitive influences producing low rates, are failures.

The industrial development of this State, which leads all other states in the volume of her manufactures, is largely due to low freight rates. Other states have their coal, coke, iron and other natural products, but New York for three-quarters of a century has had the most extensive system of internal waterways of any State in the Union, over which several millions of tons of raw material and manufactured products have moved annually, at freight rates below those of any other State.

All writers of repute on political science recognize the principle, that the production and distribution of wealth largely depend on the facility and cheapness of transportation. As the cost of transportation decreases, both production and consumption increase, and man's natural and acquired wants are more abundantly supplied. New industries spring up wherever the transportation problem is minimized by competitive effects of water communication with the marts of trade. It is a maxim of political ethics that trade enriches nations. So does it enrich a great State like New York, which has such natural resources and such a variety of industrial and commercial interests. Its commerce is almost as extensive as that of some independent governments and it is as greatly concerned in the transportation problem as are they. Economy in the transportation of agricultural products to cities, and of merchandise to the

country, enriches both urban and rural communities. Insofar as the cost of transportation may be eliminated, that far at least may be increased the purchasing power of the consumer. When it cost \$40, \$60, \$80 and \$100, as is said was the case before the completion of the Erie canal, to transport a ton of merchandise from New York City to western New York, and 30, 40, 50 and 60 cents to transport a bushel of wheat from the Genesee valley to New York City, much of the selling price of such merchandise and wheat was made up of freights, and the demand therefor and supply thereof were kept within the smallest possible compass. Such high rates of transportation were serious obstructions to trade and to an interchange of commodities. That has been one of the most serious hindrances to the development of some of the New England states. The early development of our artificial waterways did away with such obstructions and hindrances in this State. In time its inland and foreign commerce surpassed those of every other State, but this cannot long continue, for there has been in late years a marked decline in the relative volume of the commerce of the port of New York, when compared with that of Montreal, Boston, Philadelphia, Baltimore and New Orleans.

In 1880 New York's tonnage exceeded that of these five other Atlantic ports, but in 1898, they had increased their foreign tonnage by 2,500,000 tons and have outstripped New York. During this time, New York has been gradually losing both her export and import trade, while other Atlantic ports have been steadily increasing theirs. Mr. Gustav H. Schwab says that "the average decline per annum in the value of New York's foreign commerce from 1880 to 1898 was \$16,657,416."

The grain exported from the port of New York in 1902 was 30,000,000 bushels less than in 1893. The loss of commerce to the port of New York is believed to be principally due to the decline in canal tonnage, and the differential railroad freight rates established against New York by trunk railway managers in favor of other Atlantic ports, such as Philadelphia, Baltimore, Norfolk, Newport News and Bos-

ton.¹ This differential rate is an arbitrary extra charge of two or three cents per hundred pounds on freight moving from the Mississippi valley destined for the port of New York in excess of the charges on freight from the same vicinity, destined for Philadelphia, Baltimore or Newport News. This discrimination in the pooling of railway rates by trunk lines against the port of New York has diverted hundreds of thousands of tons of freight away to other Atlantic ports, for commerce travels along lines of least resistance. Such causes as these have operated very unfavorably to the commerce of New York.

There has been no material improvement in the condition of the Erie, Oswego and Champlain canals in thirty years and they are wholly inadequate in their present condition to compete successfully with railroads in carrying freight, so as to act as a regulator of rates between the Middle West and the seaboard and thereby hold the commerce of the city and State of New York. They are no longer a controlling factor in the transportation problem. Railway managers may continue to discriminate in freight rates against this State and the People are powerless to prevent it. Agriculture, manufactures and other interests may be seriously affected by high freight rates, but the canals if improved will operate as regulators of freight rates. Unless this be done, the interior towns and villages and farming communities will become as inaccessible to the great marts of trade as have been the towns, villages and farming communities of Pennsylvania, since the abandonment of its canals.

1. Governor Black's Commerce Commission reported on this question at length and assigned as the chief cause for the decline in the foreign commerce of New York City the adoption of certain differential rates against New York in 1877 by trunk line railroads, whereby it was intended to offset the advantage possessed by New York City in lower ocean rates than were possessed by the other Atlantic ports. By these differentials an artificial diversion of trade from New York to other ports is accomplished. That Commission reported as follows: "To offset all the advantages enjoyed by New York City by an inland discriminating rate against New York is an arbitrary imposition of a burden upon all the export products of the territory tributary to New York in the competition to which they are subjected in the markets of the world. Such an imposition is not only indefensible from any standpoint of legitimate competition; it is not only an injury to the Harbor and to the State; it is a crime against the commerce of the nation."

The State might well maintain its canals as freight regulators, though they transported no freight whatever.

In 1882 Governor Horatio Seymour said that "if they (our canals) do not carry a pound of freight, it would be wise to keep them in order, so they would be ready for use to defeat unjust and hurtful charges against the business of New York. The chief element in the prosperity of every State or nation is the economy of transportation of persons and property. It is the most marked fact in the difference between civilization and barbarism."

When we consider the millions of tons of local and through freight annually transported in this State, it will be readily seen that the saving of a few cents on each ton will result in a large aggregate annual saving to the People of this State. This has stimulated industries not only in the thirty-one counties in touch with canal transportation, but in the other thirty counties as well, and has contributed more than any other cause to make New York the largest manufacturing State in the Union.

New York also leads in wealth and in population. It has outstripped most of the other states in agriculture and especially so in its dairy industries, which have grown rapidly to supply the demands of the larger cities. There were produced in this State in 1899, 115,408,222 pounds of butter, 130,010,584 pounds of cheese and 448,782,151 gallons of milk, besides all that were consumed on the farms and were unreported. The census reports show that the value of the entire farm products of the State for the year 1900, was \$181,841,420, while the value of manufactured products was \$2,175,726,900. The latter were ten-fold larger than the former.

An examination of the interests of a few counties will disclose their dependence, as well as that of many others, on cheap water transportation, which all enlightened statesmen recognize as essential in the development of a State or nation along economic principles.

Albany county in 1900 had a population of 165,571. The city of Albany had 94,151, the city of Cohoes had 23,910, and the city of Watervliet had 14,321, so that four-fifths of

the people of this county residing in cities were largely dependent on the industries in these cities for support.

These industries were likewise largely dependent on cheap water transportation rates for their success. Fortunately these three cities are located on the banks of the Hudson and enjoy some advantages over cities located considerable distances away from water transportation. The industries, however, of the cities are not independent of cheap water rates. The raw material must be assembled from the North and the West as well as from the South for manufacture and the finished products are then distributed to the North and largely to the West over the artificial waterways that are tributary to the industries of this county. Lake Champlain, which was discovered by Samuel de Champlain on July 4, 1609, two months before Hendrick Hudson explored the Hudson river, is but 66 miles north of Waterford. It has an active commerce and is surrounded by rich lands and extensive mines of iron ore, which are needed for the furnaces along the Hudson. It is important, therefore, that the Champlain canal be improved in the manner contemplated, and Albany county as well as Rensselaer county will be a direct gainer by being brought into better business relations with that territory. Albany county is essentially a manufacturing county rather than an agricultural county. The aggregate value of its manufactured products in 1900 was \$42,721,067, whereas the value of its farm products was only \$2,806,275, which is about one-fifteenth of its manufactured products. Albany county is the fifth largest manufacturing county in the State.

The city of Cohoes in 1900 had a population of 23,910 and its wage earners numbered 9,000, who together received \$3,140,668 in wages. The manufactured products aggregate \$11,636,130 in value and was the tenth city in rank. Its leading industries were hosiery, knit goods, cotton goods, shirts, house furnishing goods, etc., wrought iron pipe and steel products. There were invested \$438,172 in its foundries and machine shops in 1900, and its products were valued at \$396,872. There were invested in its hosiery and knit goods industries \$5,299,944, and the value of the output

from those factories was \$5,026,374. There were also large investments in other enterprises, such as planing mills, sash, door and blind factories and in printing and publishing houses.

The total capital invested in manufacturing enterprises in 1900 was \$11,316,482, which afforded employment for thousands of wage earners in the 316 different establishments of the city. The success of these industrial enterprises is largely conditioned upon cheap transportation for the assembling of the raw material in this city and the distribution of the manufactured products throughout the country. The lower freights are, the abler such industries will be to compete with other factories in other parts of the country. This city ought to become a very much larger manufacturing center after the Erie and Champlain canals are improved in the manner proposed. The prism of water in the Mohawk and Hudson rivers will be much greater and transportation rates will be much lower than they are at the present time.

In 1902, the equalized valuation of the property of Broome county was \$32,835,626, which sum is .571 of one per cent. of the aggregate assessed value of the property of the State, and that on Sept. 30, 1902, amounted to \$5,754,400,382. If Broome county were to pay its proportion of the canal improvement debt this year, it would be required to pay but \$576,710. Under the present Constitution payment thereof is extended over a period of eighteen years, and the direct tax necessary to raise the principal and interest will be less than \$1.30 on a thousand dollars assessed valuation. If the payment thereof be extended over a period of fifty years as proposed by a constitutional amendment, which has already passed the Legislature this year, then the direct tax on a thousand dollars, assessed valuation, will be less than 70 cents to pay principal and interest. As the assessed valuation of the property of the State increases, these rates will decrease and in all probability they will entirely disappear some years, as the surplus moneys of the State treasury accumulate. The tax rate for this year is but

13/100 of a mill on each dollar's valuation of the assessable property of the State. A constitutional amendment has passed two legislatures, authorizing the Legislature to apply any surplus moneys in the treasury to the liquidation of the bonded debt of the State; and also to suspend the imposition of a direct tax, when such surplus exists. The canal improvement bond issue is but 1¾ per cent. of the assessed value of the property of the State, and as such property increases, this per cent. will be lowered. Canal improvement is so important to the industrial and commercial welfare of the State that the expenditure is fully warranted. The freight rate by rail between Buffalo and New York is 25 per cent. lower than the freight rate by rail between Pittsburgh and New York, and this is due to the fact of the low freight rate on the Erie canal, which acts as a regulator of rail rates between New York and Buffalo. It also benefits Binghamton, for the Binghamton rate as well as the rail rate between other points, intermediate New York and Buffalo, are proportioned to the New York and Buffalo rate, so that railroad rates from New York to Binghamton are 25 per cent. lower than they are from New York to points in Pennsylvania, equidistant with Binghamton from New York. On all western freight Binghamton has the same rate as Utica and in this way Binghamton is directly benefited by the cheap water rate established over the Erie canal. The Interstate Commerce Commissioners in their report for 1899, speak of "the Erie canal as preventing unreasonable high rates by carriers and thus affording a competition in the public interests." They also say in 1900 that "it has been generally understood that the canal from Buffalo to New York City, while it carried a comparatively small amount of the grain traffic, determined the rate at which the railroads should carry the balance." And they also assert that "there would be a point undoubtedly at which the Erie canal would again become an important carrying agency."

Frequent reference is made in their reports to the Canadian waterways and the danger of diverting traffic to Montreal, to the loss of the port of New York and the decline of the commerce of the State. Water transportation is the

cheapest transportation known to man and this is generally recognized the world over. The large industrial centers cannot compete with other industrial centers, in touch with water transportation, unless they have that advantage also.

Binghamton and Broome county enjoy lower freight rates than places in Pennsylvania equidistant from New York for the reasons hereinbefore stated. In 1900 there were invested in the 868 manufacturing establishments in Broome county \$12,787,844, as follows: \$861,441 in real estate, \$1,520,714 in buildings, \$3,448,614 in machinery and \$6,679,747 in capital stock and sundries. The total wage-earners numbered 8,518, who received that year in wages \$3,392,605, and there were paid for salaries \$556,274. The miscellaneous expenses for rent, taxes, etc., of these industrial institutions amounted to \$1,212,074, and the material for manufacture cost \$10,390,438. The aggregate manufactured products of Broome county in 1900 were valued at \$18,474,365. These are increasing very rapidly, and more than two-thirds of the industries of Broome county are located in Binghamton, which produces two-thirds of the manufactured products of the county, and which comprises four-sevenths of its population. In 1900, Binghamton had a population of about 40,000, and was the ninety-third city in population in the United States. From 1880 to 1900 it more than doubled its population. It now ranks as the ninth largest manufacturing city in the State. Its 594 manufacturing establishments that year had an aggregate capital investment of \$9,295,858. There were employed in these establishments in 1900, 6,106 wage-earners, who received that year \$2,461,084 in wages. There were disbursed for miscellaneous expenses \$1,040,419, and the materials consumed in the various factories were valued at \$6,339,365. The aggregate value of the manufactured products of the industrial establishments of Binghamton for the year 1900, was \$12,638,547, which is approximately six-tenths of one per cent. of the aggregate manufactured products of the State, which were altogether valued at \$2,175,726,900; whereas the value of its total agricultural products was less than one-tenth of that amount, namely, \$181,-

841,420. The aggregate value of the agricultural products of Broome county in 1899, not including such as were consumed on its 4,410 farms, was \$2,629,531, which is about one-eighth of its manufactured products for that year. Its manufacturing interests are already very large and increasing rapidly every year, and in all probability will continue to increase, provided manufacturers can be assured that after they have built their establishments and made their investments, freight rates will not materially increase.

The people of Broome county need not be told of the ruin brought to manufacturing institutions in Pennsylvania in consequence of discriminating freight rates fixed by railroads as soon as the canal system of that State was abandoned. The industries of many towns were seriously affected and in some instances, both the industries and the towns were nearly wiped out of existence. While Pennsylvania maintained its canal system its interior towns and cities in touch with that system grew rapidly and attained a flourishing condition. After the abandonment of the canal system in Pennsylvania, many of such towns and villages relapsed into a condition of decline, from which they have never recovered, as in the case of the town of Dauphin. Will the people of New York make a similar mistake? Are the business interests of Binghamton and the wage-earners not aware of the fact that economy in transportation rates has made this the largest manufacturing State in the Union, and that such economy is due to low freight rates over the canals of this State?

The Interstate Commerce Commissioners and all other authorities on the subject of transportation, including committees, appointed by the Senate of the United States and by the Legislature of this State, have found over and over again that such was the case. All European authorities have reached a similar conclusion, namely, that water transportation affords the cheapest transportation known to man. Broome county and the city of Binghamton are remarkably prosperous and are increasing rapidly in population and in wealth. This increase is due primarily to the activity of its industrial establishments, and in this respect Broome county

may be likened unto many of the larger counties whose flourishing condition is attributable to the development of their industries and the extension of their commerce. There are only eight counties in the State, wherein the manufactured products do not exceed in value the agricultural products of such counties, and the State of New York will cease to be the Empire State when it loses its commerce, as it is now doing, and when as a result thereof its factories and industrial institutions begin to decline.

What would the agricultural products of Broome county be worth, were it not for the markets of Binghamton and the other cities of the State? New York is the largest dairy State in the Union, because it has large centers of population to consume such products. While they are thus affording ready markets for the agricultural products of the State, they are also sustaining large populations from the millions of dollars paid out in wages annually and increasing the wealth and assessable property of the State. Thus they relieve the agricultural districts from taxation, and that accounts largely for the condition that exists in this State this year, with as low a tax rate as we have had in upwards of 50 years.

These large industrial centers must have all the advantages that nature and the wit of man can provide to enable them to maintain themselves and provide employment for their wage-earners and food for their families, and all business men appreciate the fact that low freight rates are absolutely indispensable to the success and prosperity of these industrial centers. The large cities of this and other countries are located along natural or artificial waterways. Look the country over and it will be seen that the large cities of the United States are in touch with water transportation. They cannot exist without it. It therefore behooves every loyal New Yorker, who would have his State continue her splendid leadership in population, manufactures, commerce and in wealth, to vote "yes" on the pending Referendum Bill. This is a supreme opportunity, that may never come again to the people of this State to show their loyalty to it and perpetuate the splendid achievements, which adorn its



history from the promulgation of its first Constitution in 1777 to the passage of the Canal Referendum Bill of 1903.

In Chautauqua county the agricultural products in 1900 were valued by the United States census officials at \$5,805,775, whereas the manufactured products that year were valued at \$18,876,635, thus showing that the twelfth in rank of the principal agricultural counties of the State was annually receiving three times as much from its factories in Mayville, Jamestown and Dunkirk, some of which were more or less dependent upon cheap water transportation, than it was receiving from its farms.

In 1900, the county of Erie had a population of 423,686, an increase of 110,000 in ten years and in 1890 its population was 328,981, an increase of 103,000 over that of 1880.

In 1900, Buffalo had a population of 352,387, whereas its population in 1890 was 255,664. During that decade, Buffalo had increased 96,723, which is about nine-tenths of the increase of Erie county from 1890 to 1900. Its population now is approximately 400,000.

The population of the State of New York in 1900 was 7,368,394, whereas its population in 1890 was 5,997,853, an increase of about 1,270,000.

In 1820, New York had a population of 1,372,812, Virginia had 1,065,366 and Pennsylvania had 1,049,458.

In 1900 Pennsylvania had 6,302,115 and Virginia had 1,854,184. Pennsylvania, Illinois and Ohio are increasing rapidly and New York may be overtaken by these other states, unless she push forward in the race for supremacy, for these other states are making rapid gain in population, manufacture, commerce and in wealth. The advantages of her position may not always give her the lead in these particulars, which are indicative of enterprise and substantial growth. Hitherto she has easily maintained her lead largely from the fact that her large commercial facilities have so stimulated and supplemented her industries that they have

grown to enormous proportions and they in turn have offered employment for the great centers of population, dependent on the skill and labor for a livelihood.

Cheap transportation over the waterways of this State has made it possible for these industries to flourish, when it was impossible for them to exist in other states not in touch with the competitive influences afforded by waterways. A saving of a few cents in freight rates on a hundred pounds of raw material, assembled for manufacture as well as on the finished products, when being distributed, determine the success of many business enterprises.

It is generally conceded by all reputable authorities on transportation that the canal system of this State has been a most potential regulator of freight rates in this State, and that New York has enjoyed advantages in this respect not possessed by any other State. The Interstate Commerce Commission in 1899 speak of the Erie Canal as preventing unreasonable high rates by carriers and thus affording a competition in the public interest. They say further (1900) in speaking of combinations to control rates between the Great Lakes and the seaboard that "it has been generally understood that the canal from Buffalo to New York City, while it carried a comparatively small amount of the grain traffic, determined the rate at which the railroads should carry the balance." But one witness testified in substance that it was no longer a controlling factor. They said further that here would be a point undoubtedly at which the Erie canal "would again become an important carrying agency."

Frequent reference is made by the Interstate Commerce Commission to the competitive influences of the Canadian waterways and the danger of the diversion of the grain trade to those waterways for export via Montreal. During the months of August and September this year [1903], their apprehensions as to such diversion were partially realized, for upwards of 5,000,000 bushels of wheat and other grains were diverted from Buffalo to Montreal. The loss of such tonnage fell most heavily upon the railroads between Buffalo and the seaboard.

In this connection it may be said that canal advocates claim that canals will supplement rather than injure railroads.

In an investigation had before the Isthmian Canal Commission a prominent western railroad president in speaking of the effect of the proposed Isthmian canal on railroad traffic, testified that "in a general way my idea has been, and is, that the construction of the canal would be beneficial to the Mississippi valley as well as to the Pacific coast. I incline to think cheap transportation for heavy freights between this Mississippi valley and the coast would so increase general business that the railroads would get back out of high class freights and passengers, more than they would lose by the loss of low class traffic where time is not important." Similar views obtain in France, where the French Chamber of Deputies has made a thorough investigation of the transportation problem, and its legislative committee reported that "waterways, by increasing traffic, are rather the auxiliaries than the competitors of railroads. In procuring for manufacture cheap transportation for coal and raw materials, they create freights whose subsequent transportation gives profit to the railroads."

The German Government is pursuing a similar policy and is expending millions of dollars in improving its waterways, notwithstanding the fact that the Government owns seven-eighths of the railways in that empire.

Such well-known railroad officials as Senator Depew have expressed themselves strongly in favor of the improvement of the canals of this State, on the theory that increased facilities for transportation would increase traffic and that the railroads would get their share of it.

The new industries that will naturally be established along such waterways will draw to them a large volume of high-class freight that must be carried by railroads as well as a large number of people to be transported as passengers, while the bulky slow-moving freight is being carried over the canals. Such has been the experience in many European countries where waterways have been constructed and operated.

In 1900, Buffalo, the second city in the State, had 3,902 manufacturing establishments, with an aggregate capital investment of \$103,939,855. It employed 43,422 wage-earners, whose wages aggregated in one year \$19,915,817. The value of the manufactured products that year was \$122,230,061, and the cost of the material therefor was \$73,359,466. If this latter sum be deducted from the former, it will show that there was expended for salaries, wages and interest on the investment, dividends and operating expenses in the year 1900 in this city, the sum of \$50,000,000, which is about half the cost of improving the Erie, Oswego and Champlain canals. It thus appears that the earning capacity of the industries in this city in one year was \$50,000,000. The year 1900 was not the most prosperous year Buffalo has had, and since that time the Lackawanna and Susquehanna steel plants have been established with the capital of about \$60,000,000, and the American Radiator Works, the Taylor Signal Company, piano factories and many other industrial establishments have located in this city, which employ thousands of men and which expend many millions of dollars for salaries and wages in addition to the \$50,000,000 expended in 1900.

This is some indication of the importance of great industries in a city like Buffalo. The wages and salaries are expended for the necessities of life and are a direct or indirect benefit to all classes of trade and to all branches of business. Pittsburg, Manchester and Sheffield illustrate the operation of industrial development.

I have thus dwelt upon the industrial aspects of this city for the purpose of showing the magnitude of its industries, the proportion of its population employed and the large expenditure of moneys in the form of salaries, wages and operating expenses. No one will claim that these industries could or would have been as extensive and as productive, as they now are, had it not been for cheap freight rates, due primarily to the competitive influence of water transportation.

We have it in our power to retain these industries and to draw others to this city, provided we are able to assure man-

ufacturers that freight rates will not advance materially after they have invested their capital and are then powerless to deal with the transportation problem.

It would be presumptuous on our part to undertake to give any such assurance, unless we were satisfied that our canal system would be improved in such way as to restore its efficiency as a freight regulator. The best expert information on the subject concurs in the opinion that the contemplated improvement will accomplish the purpose. It therefore devolves on the electors of this city to see to it that the Referendum Bill is approved. Buffalo has important business interests to conserve, such as its extensive and far reaching commerce, its mercantile trade and others.

Buffalo's commerce is extensive and voluminous. In 1902 its aggregate receipts of flour and grain were 184,379,518 bushels; its iron ore aggregated 2,386,767 tons and there were received 216,842,573 feet of lumber.

Its exports by lake comprised 681,971 tons of coal, 642,040 barrels of salt, 3,495,413 barrels of cement and 2,451,538 barrels of sugar. Its Custom House receipts were \$896,552.13. The value of imports was \$5,752,462, and its exports to Canada were valued at \$15,874,453.00.

In 1902, there were built twelve new vessels at Buffalo with an aggregate tonnage of 8,749 tons. The number of individual vessels at the port of Buffalo, 1902, was 316, having an aggregate tonnage of 146,919 tons. The aggregate number of entries of vessels at the port of Buffalo in 1902, was 4,871, which carried 5,810,236 tons of freight.

There were shipped on the canal in 1902, 12,066,082 feet of lumber that was measured and 399,000 barrel staves and headings and large quantities of unmeasured lumber, whose estimated amount was 389,638,000 feet.

Canal tonnage has greatly increased during the season down to October 1, 1903. Receipts by canal of the larger quantities of tonnage to October 1st, were as follows: 71,092,657 pounds of sugar, 21,067,539 pounds of coffee, 83,768,726 pounds of merchandise, 569,648,818 pounds of cement, stone and sand, 49,564,855 pounds of miscellaneous freight, and 12,902,275 feet of lumber; and the shipments

from Buffalo eastward by canal of the larger articles of tonnage have been as follows: 12,793,047 feet of lumber, 3,511,922 bushels of wheat, 4,444,069 bushels of corn, 3,283,526 bushels of oats, 51,257,648 pounds of flax seed, 10,355,480 pounds of pig iron, 13,935,000 pounds of merchandise.

There were thousands of tons of receipts and shipments not included in the principal items given, which were carried over the canals. However these illustrate something of the enormous traffic on the present Erie canal; and although it was opened later than usual last Spring, the number of clearances of canal boats at Buffalo exceed those of last year by nearly 400 and the volume of tonnage of the canal for the season will approximate 4,000,000 tons, which is a large increase over the tonnage of 1902. Much of this tonnage consists of commodities, either produced or consumed in this State, so that the saving in freight rates is a direct gain to the people of the State.

To illustrate: the canal freights on sugar from New York to Buffalo have been from 8 to 10 cents per hundred pounds and most of the season at 8 cents per hundred pounds, whereas the railroad rate has been 16 cents a hundred on sugar, so that the saving in freights on sugar received by canal at Buffalo this year has been about \$56,875, and the saving on coffee has been about \$15,000, and the saving on general merchandise has been approximately \$150,000. The saving on the bulky and heavy freights has been still larger in proportion to the tonnage, for the canal rate on the larger part of the tonnage has been but little more than 1-3 of the railroad rate. If we estimate the saving at 25 cents a ton on the aggregate canal tonnage for the year, it will amount to a saving of a million dollars, and if the saving in canal freights be estimated at 37½ cents a ton, it will amount to a million and a half dollars, which is sufficient to pay the operating expenses and one-eighth part of the canal debt this year, so that on this basis the canal system is self-sustaining.

The indirect saving on the 100,000,000 tons of freight transported by the railroads of the State during the year, by reason of the competitive influences of the canals as a regulator of freight rates, is far more than would be neces-

sary to meet the interest and principal of the one hundred and one million dollar canal improvement bond issue, even though the bonding period were limited to 18 years. Buffalo and every other city and town in the State are thus benefited by the direct and indirect saving in freight rates, and that largely accounts for their phenomenal growth and industrial prosperity.

No one familiar with the laws of trade governing the production of wealth will deny that the cost of transportation in the assembling of raw material for manufacture and distribution of the finished products largely conditions the success and failure of business enterprises. Economy in the rates of transportation has made this the largest manufacturing State in the Union, but whether it remains so, depends largely upon the maintenance of low freight rates. Low rates can only be maintained where there are waterways to act as a regulator of freight rates. Buffalo is very advantageously situated at the eastern end of the greatest chain of fresh water lakes in the world, whose commerce is more extensive than that of the high seas and which are in touch with seven great productive and wealthy inland states, possessing inexhaustible iron-ore and copper mines and the most extensive grain fields in the world. The vast tonnage floating over these great lakes finds its natural outlet to the sea through an artificial waterway and over railways extending from Lake Erie to the port of New York, with a commerce much more voluminous than that of Rotterdam, which is at the junction of an extensive canal system tributary to its commerce, Buffalo may yet rival Liverpool and become the largest interior commercial port in the world. No other port in the world could handle two hundred and twenty-one million bushels of grain and flour in a year, as Buffalo did in 1898.

Its lumber trade, its coal trade, its iron ore receipts, and its pig-iron shipments, will increase for years to come and all those as well as its numerous and diversified industries, are dependent on cheap transportation to and from the sea.

The city of Manchester and adjacent territory expended \$75,000,000 in constructing a waterway only 35½ miles long

to bring that city in touch with ocean commerce. Chicago and the drainage district have expended \$18,000,000, in addition to the twenty millions necessary to build a drainage canal in order to make that drainage canal navigable. Leipzig in Saxony is to expend over \$9,000,000 on its canal to Riesa. Other cities the world over are equally enterprising in the construction, maintenance and operation of facilities for cheap transportation by water. And this city, which has had much to do in shaping the canal policy of the State and whose growth is attributable to its location and facilities for cheap transportation, is expected to cast a solid vote for the pending Referendum Law. Erie County ought to give 50,000 majority for canal improvement. In 1895 it gave over 40,000 majority for the Referendum Bill of that year.

This is a far more important measure, and will insure Buffalo's growth and industrial prosperity for another century. This is a supreme opportunity for Buffalonians to show their loyalty, which rarely comes to the citizens of any city, and which may never come to Buffalo again. In importance this measure transcends political issues, as much as the prosperity of a great city transcends in importance the prosperity of a single individual.

A celebrated Athenian statesman once said that he did not know how to play the cithera, but he did know how to make a small town become a great city. Under his far-seeing and brilliant statesmanship, Athens became the center of an extensive commerce and the eye of Greece. The golden head of the gigantic statue of Athene Promachos rose above the Acropolis as the crowning feature of her works of art, and became a beacon to the storm-tossed mariner rounding the promontory of Sunium, and thus enabled the ships of the Aegean to transport the rich and beautiful marbles of the islands on the Ionian Sea to the Piraeus to embellish the streets and ornament the temples of the classic city of Athens. Thus does commerce serve the industries and promote the arts of a progressive civilization.

In 1902, the equalized assessed valuation of the property of Niagara county was \$39,384,864, which is approximately

.684 of one per cent. of \$5,754,400,382, the aggregate value of the property of the entire State. Niagara county's portion of the Canal Improvement bond issue of \$101,000,000, at the present assessed valuation of the property of the State is approximately \$690,000, whereas the amount of money to be expended in Niagara county in constructing the enlarged Erie canal will be approximately \$5,870,000, so that this county will have paid into it for labor, material, etc., a surplus of more than \$5,000,000, over and above all taxes it will be required to pay toward canal construction.

This is one of the most prosperous counties in the State. Niagara Falls and Lockport are the two most promising cities and the lumber yards of North Tonawanda, depending absolutely on cheap transportation, are among the most extensive in the country. In the year 1900, Niagara county had invested in its various manufacturing industries \$27,056,914, which employed 8,617 wage-earners, whose aggregate wages were \$3,915,109, and the salaries paid that year amounted to \$830,945. There were disbursed by these manufacturing industries for miscellaneous expenses \$1,591,761, and for the cost of raw material and power to manufacture the same the sum of \$14,043,710.

The aggregate value of the manufactured products of Niagara county for the year 1900 was \$23,662,842. This amount was five-fold larger than its aggregate agricultural products, which, for the year 1900, were valued at \$4,096,058.

The dairy products of this county for the year 1900, were valued at \$535,727, which is nearly enough to pay Niagara county's share of the Canal Improvement indebtedness. The products of its fruit orchards, of its grain fields and its live-stock, which in the year 1900 were valued at \$2,089,585, aggregated about \$3,000,000. Thus it will be seen that Niagara county is one of the most prosperous in the State, and is abundantly able to bear its share of the cost of the proposed Canal Improvement without imposing any appreciable burden on its taxpayers.

Its agricultural interests as well as its manufacturing industries, located at Niagara Falls, Tonawanda and Lock-

port, are largely dependent on cheap transportation in order to compete with industries, similar in character, located elsewhere in this State or nation. The advantages which the factories of Western New York, and especially those located in Niagara Falls, Tonawanda and Lockport, derive from electric power, generated at Niagara Falls, might easily be offset, by such discriminating freight rates as have existed in various parts of the country where the competitive influence of cheap water transportation did not exist. The city of Lockport has its Holly pump works, its tanneries, its furnaces and paper mills, which have all been doing a prosperous business. It has had very low freight rates over the Erie canal, and the city has prospered accordingly. In 1900, Lockport had a population of 16,581 and a total capital investment of \$6,250,700 in its 243 different manufacturing establishments. This investment included \$680,661 in real estate, \$1,083,621 in buildings, \$1,727,056 in machinery and \$2,761,371 in cash and sundries.

These manufacturing industries paid in taxes in the year 1900, to the city and county, the sum of \$19,325, and they paid to their 2,699 wage-earners the sum of \$1,217,672, and to their other employes in salaries the sum of \$238,799; and they disbursed for other miscellaneous matters the sum of \$398,660. The cost of the raw material used in the 243 separate factories of Lockport that year was \$3,327,109, including the expense for power. The value of its manufactured products for the year 1900 was \$5,887,905. This affords some conception of the magnitude of the industrial enterprises of the city of Lockport and shows to some extent the importance of their maintenance and growth as wealth-producing and wealth-distributing agencies. In addition to this, there is the advantages to the rural towns arising from the large consumption of agricultural products in Lockport by the more than 3,000 employes and their families, who are sustained by its industries. These industries are as dependent on cheap rates of transportation as any other industries in the State; and whether the raw materials that are manufactured in Lockport or the finished products, be transported by rail or by water, there is no

denying the fact, that the freight rates during seven months of the year are much lower than they would be, were it not for the fact that the canal freight rate is a controlling regulator of rates by rail on all tonnage entering, or clearing from this city. As its factories increase, they will employ more men and disburse more money in wages and salaries and in other miscellaneous expenses, and thus build up the city and increase its wealth accordingly.

The best expert and engineering talent in the country agrees that the \$101,000,000 bond issue will supply ample funds for the construction of the three principal canals, which it is proposed to improve; and that when they are so improved, they will hold down freight rates so low that New York State, and especially the 31 counties in touch with canal transportation, will continue to enjoy the cheapest freight rates of any State in the Union, and this will enable New York to maintain her industrial and commercial supremacy, as well as her lead in population, wealth and all other elements of a progressive civilization.

It is a well-known fact that economy and facility in transportation bring increasing traffic, and traffic stimulates industries, and industries produce wealth, and wealth sustains great centers of population. These in turn furnish the markets for the agricultural products of the farms of the State, so that agriculture thrives where industries exist and declines where there are no markets for the products of the farms of the State. The interdependence between these interests is so close that where industries flourish, farm gardening, fruit growing, dairy farms and other agricultural interests also flourish. What would the farmers of Western New York do without the markets of Buffalo, Rochester, Niagara Falls, Lockport, Dunkirk, Jamestown, and the Tonawandas? Their products would perish and their farms would decline in value. These ready markets, however, are so accessible and the prevailing prices have been so high, that the farmers of Western New York are in a more prosperous condition than they ever have been before. Is it possible that they do not appreciate this fact? Will the farmers of Niagara county vote against

a proposition that is fraught with such serious consequences to the industrial and business interests of this and other cities? Do they not appreciate the fact that these interests cannot continue to flourish, unless they can be assured of cheap water transportation for the raw material and finished products coming to and going from the city. Do they not know that a vote against the Canal Referendum bill may close the canal that has made Lockport a flourishing city, whose prosperity would end with the abandonment of that canal? They should consider well what an adverse vote means on a proposition fraught with such tremendous consequences to the business and industrial interests of this State, to which interests the farmers must appeal, for markets consume the products of their farms. This is no trifling matter, which can be disposed of on the basis of a mere political issue. It is the most important business proposition ever presented to the State. In importance it transcends gubernatorial, Federal and tariff issues, because it will bring about rates of transportation at so low a rate that the millions of tons of freight produced or consumed in this State can be carried at such a saving as to more than pay the cost of canal improvement and such as will result in bringing to this State hundreds and thousands of new manufacturing industries dependent on cheap transportation for their success, and the populations which these will sustain will make larger and larger demands on agricultural communities to supply them with the edibles and necessities of life. Every voter in Niagara county will serve his own interest and the interest of his fellow men best by voting for the Referendum bill.

The tax on a house and lot or farm assessed at \$1,000, if the bonded debt be extended over a period of 18 years, will be but \$1.30, and if it be extended over a period of fifty years will be but 70 cents at the present assessed valuation of the property of the State. The valuation of the property of the State, however, is increasing so rapidly that the tax rate will be accordingly reduced, so that these rates are sure to lessen as time goes on. If there be a surplus of moneys in the State Treasury that may be applied to liqui-

date the bonded debt of the State, then during some years there may be no direct taxes to meet the principal and interest of the proposed Canal Improvement. The electors of the State are not likely even to be called upon to pay the full amount, for which the proposed bond issue is to be authorized. \$101,000,000 is only 1 1-3 per cent. of the present valuation of the property of the State. That is less than the local tax rate in many towns and cities of the State this year. The tax will be so small and the benefits so potential and far-reaching to the business of the State, that no one can do his duty to the State and especially to the people of this county, who does not vote "Yes" on the Canal Referendum bill.

Rensselaer county at the last census had a population of 121,697, including the city of Troy with a population of 60,651. The aggregate assessed valuation of the real and personal property of this county in 1902, was \$70,450,356. There were but eight wealthier counties in the State in 1902. It had, in 1900, 3,668 farms of the average size of 99.5 acres each. These were valued at \$6,122,330 and the buildings thereon at \$6,266,440, and the implements and machinery were valued at \$1,048,960, and the value of the live stock thereon at \$1,852,146. The 3,273 dairy farms in that county in 1899 produced 10,000,000 gallons of milk, 1,500,000 pounds of butter, 21,000 pounds of cheese; and its dairy product in 1899 was valued at \$1,021,011. It produced the same year 963,900 dozens of eggs worth approximately \$133,870. The value of the entire agricultural products, not including such as were fed out on the farms, in the year 1899, was \$3,128,532. This was about one-twelfth of the value of the manufactured products of that county in 1899, which aggregated \$38,200,405. In 1899 there were employed in the city of Troy 21,564 wage-earners, who received that year \$8,571,923 in wages and the manufactured products of that city for that year aggregated \$28,209,259. The raw materials, including mill supplies, freight, fuel and power for these products amounted to \$15,781,216, so that there was left \$22,419,189 for wages, salaries, maintenance

of plants and interest on investments. The freight is one of the principal items in the cost of manufactured products and averaged over the New York Central system in 1899, says George H. Daniels, 5 9/10 mills per ton per mile. This rate is three times the canal rate that year and several times the low canal rate that will prevail on the enlarged canals.

It is difficult to estimate the loss to the manufacturing industries of Troy annually in prevailing freight rates on raw material assembled for manufacture and on the finished products distributed from it. Still the loss to Troy is much less than to those towns and cities not in touch with canal transportation, where present comparatively reasonable freight rates prevail. The impetus that will be given to the industries of Troy and other cities along the thousand ton barge canals by reason of low freight rates will make them great commercial and industrial centers. Under the Canal Referendum bill, Troy is at the eastern terminus of the enlarged Erie canal and at the southern terminus of the proposed improved Champlain canal. The raw material from the West and from the North may be there manufactured into the products that will find ready market at the South and West and no one can tell how great the city of Troy will become, when there is added to its industries the iron ores of Lake Superior and Lake Champlain, which will be drawn thither for smelting into bars of iron and billets of steel, as soon as low freight rates are established on the enlarged canals. Foundry and machine shops are likely to increase and there will be added new life to the extensive manufacturing industries that are now doing a flourishing business in Troy. Among them are those which manufacture men's furnishing goods, collars, shirts, hosiery and knit goods, flour and grist mills, foundries and machine shops for the manufacture of iron and steel, wood-pulp and paper mills, publishing and printing houses and other industrial manufactures. These all together afford at the present time employment for more than one-third of the population of the city of Troy. Rensselaer county pays 1.224 per cent. of the State taxes at the present equalized assessed valuation of the property of the State. All that Rensselaer would be re-

quired to pay this year [1903] to raise the one hundred and one million dollars, is \$1,236,240, if the entire canal debt were to be defrayed by a direct tax levy. With the rapid increase in revenues from indirect taxation, it is probable that much of the canal debt will be defrayed from such revenues. The State tax this year paid by Rensselaer is but \$9,158.55, which is at the rate of 13/100 of a mill on each dollar's valuation. Rensselaer county receives not less than \$48,000 this year from the State treasury toward the support of its public schools, and there was appropriated in 1901 the sum of \$100,000 for the improvement of the armory located in Troy, which under the law might have been exacted from Rensselaer county. The position of Troy on the east bank of the Hudson river at the junction of the Erie and Champlain canals is unique and largely contributes to its wealth and prosperity. Within easy access of tide water down the Hudson to the South and in close touch with the commerce of the Erie and Champlain canals, Troy is destined to become one of the great industrial and commercial centers of the State. Nothing can prevent its growth, situated as it is at the confluence of these great waterways, and nothing is likely to contribute to its prosperity in the future so much as the increase of the commerce upon them.

Wayne county has an area of 624 square miles and at the last census had a population of 48,660, and the aggregate assessed valuation of the real and personal property in 1902, was \$24,411,044. There are 29 smaller counties in the State than Wayne. It has several large villages, such as Lyons and Newark, each with a population of 4500, Clyde with a population of 2500 and Palmyra with a population of 2100. It has 5,286 farms, averaging 68 7-10 acres each, 3-5 of which are owned by their occupants. In 1900 the value of these farms was \$12,167,630 and of the buildings thereon was \$7,782,750. The value of the farm implements was \$1,377,090, and the value of the live stock was \$2,344,327. In 1900, 88 per cent. of the farms of Wayne county produced and reported dairy products amounting to \$619,-

378. In 1900 Wayne county produced 10,250,000 gallons of milk, 1,750,000 pounds of butter and 31,750 pounds of cheese. The value of its poultry in 1900 was \$113,667. The value of its potato crop in 1900 was, approximately, \$250,000, the value of its fruit crop was \$584,254, and of its grain and hay crop was, approximately, \$2,000,000. All its agricultural products in 1900 were valued at \$4,700,730, and the value of its manufactured products was \$4,680,877, only \$20,000 smaller than its agricultural products. For the year 1902, Wayne county paid into the State Treasury, exclusive of the school tax, \$4,423.63; its excise tax was \$5,510.64, and its transfer tax was \$10,376.97, making an aggregate payment for that year of \$20,301.24, which is about one-twelfth of one per cent. of the assessed valuation. For the ensuing year Wayne county is likely to pay still less in the State Treasury, while in 1902 it received \$40,086.59 for the support of its schools and large sums for other governmental purposes.

At the last session of the Legislature \$5,000 was appropriated for a bridge at Great Sodus Bay and \$35,000 was appropriated to promote the culture of sugar beets, in which farmers and certain industries in this county are especially interested. This makes an aggregate donation from the State to Wayne county within a year of upwards of \$80,000, not including payments for insane, and stenographers. If the Canal Referendum law be approved, there would be expended in Wayne county, within which about 38 miles of the improved Erie Canal is to be built, from \$7,000,000 to \$10,000,000. This is fifteen times larger than Wayne county's share of the expense of building the barge canals; for at the present equalized valuation of property in this State, Wayne county pays but 44-100ths of one per cent. of the State taxes, while New York, Kings and Erie counties pay 69 per cent. of the State taxes. With the rapid increase of the State's wealth, the burden of State taxes is being greatly reduced and for the ensuing year the State tax is only 13-100ths of a mill, which will make the direct State taxes for Wayne county only \$3,250. Wayne's excise and inheritance taxes will probably not exceed

\$7,000. It is possible that direct taxation may eventually be unnecessary, if the revenues derived from indirect taxation increase as they have during the last two years.

Contractors on public works of the State are required by Chapter 454 of the Laws of 1902, to employ only citizens of the United States and "in all cases where laborers are employed on any public works, preference shall be given citizens of the State of New York."

The statute further provides that if the provisions of this section are not complied with, the contract shall be void and the Commissioner of Labor is empowered to enforce the provisions of this law, which imposes a fine or imprisonment upon any contractor violating it. This will insure the employment of people of this State in the work of canal construction, if they are willing to be employed and there is no danger of an influx of hordes of foreign laborers, if the people of the State are willing to enter into contracts to perform the work. Wayne county is favorably located for the manufacture of iron and steel because the ores may be brought from Lake Superior and Lake Champlain by water, and coal and coke may be brought here by the several railroads, tapping the Pennsylvania coal fields, so that iron, steel and auxiliary industries may flourish along the Clyde and Seneca rivers as they do now along the Monongahela and Ohio rivers. Such a condition would make Wayne county one of the wealthiest counties in the interior of the State, and its commercial and agricultural advantages would be excelled by no other county. The construction of the enlarged canal up the Seneca river to and through the State Ditch and thence westerly along said river to Crusoe creek will result in making tillable hundreds of acres of land in the Montezuma marshes, which will materially increase the acreage and wealth of Wayne county. The cement lands in Macedon might then be profitably developed, the glass interests of Clyde, the fruit packing and printing press interests of Palmyra and the silver plating and beet interests of Lyons and the malting and other industrial interests, as well as all the agricultural interests of the county, would be directly benefited by the low freight

rates, which would be forever secured to the people of Wayne county.

In 1900 there were only eight counties in the State, wherein the agricultural products exceeded in value the manufactured products. Great as her agricultural interests are, they will increase as her manufacturing interests increase. The United States Census officials state that the rapid growth of cities and the development of transportation facilities have exerted a great influence in the progress of the dairy industry, until New York leads all other states in this respect. Farm gardening and the canning of fruits and vegetables are rapidly growing industries in this State and they are due principally to the demands of our large flourishing cities within easy access. The interdependence of urban and rural communities is such that whatever benefits one necessarily advances the interests of the other. It is believed by all who have given the matter serious consideration that this State must take a decisive stand now or it will lose its prestige in commerce and possibly in manufactures, and that will entail loss upon her agricultural interests. They also believe that the canal improvement, proposed in the Referendum bill, will restore New York's commerce and preserve its manufacturing interests, by furnishing the lowest attainable freight rates between the Great Lakes on the west and Champlain on the north and the Hudson, as well as between all other points in touch with canal transportation in the State, which is accessible to 80 per cent. of the population and 90 per cent. of the assessable property of the State. Cheap water transportation will thus reach eight-tenths of the people and nine-tenths of the business interests of the State. This will insure a free interchange of agricultural, mineral, manufactured products and other commodities between the industrial centers and the rural communities of the State at minimum freight rates.

It is a well-known fact that local railroad freight rates fluctuate at times to such an extent as to be almost ruinous to individual shippers. An arbitrary advance of a few cents

per hundred pounds in freight charges on some commodities will put a dealer out of business. Small dealers cannot stand such discrimination. The Interstate Commerce Commission reports are filled with just such cases, which they are powerless to remedy because the discrimination operates wholly within one State. Hitherto our waterways have prevented to a great extent such discrimination in freight rates, during the season of canal navigation, between the principal towns and villages of the State. If our waterways be improved in the manner proposed, they will prevent, for another century, ruinous discrimination in freight rates, as will appear from the low canal rates that will be established. The eminent Commissioners, appointed by Governor Roosevelt, who proposed the Thousand Ton Barge Canal Improvement, state that it may be possible to reduce freight charges to 26 cents a ton, on freights passing between Buffalo and New York, which is equivalent to eight-tenths of a cent for a bushel of wheat or fifty-two hundredths of a mill per ton per mile, while the present cost of transportation on the Erie canal averages eighty-seven cents a ton, or 2.62 cents for a bushel of wheat, or 1.9 mills per ton per mile. The average lake rate has varied from 1-4 to 8-10 of a mill per ton per mile on freight between the ports on the Great Lakes, depending somewhat on the nature of the cargoes and the seasons. The ocean freight rate on grain between New York and Liverpool for the past six years has averaged six tenths of a mill per ton per mile.

The prevailing railroad rate on Western grain for export from Buffalo to New York has been from five to six cents per bushel, while the railroad rate on the New York grain from Buffalo and points east to New York is 6 1-2 cents per bushel.

From September 15th to October 15th, 1903, the railroad rate on Western wheat for export is 4 cents per bushel and after October 15th, it is to be 5 cents per bushel. The canal rate from September 15th to October 15th, on Western wheat for export is 3 7-8 cents per bushel. Elevator charges for elevating, storing for ten days and loading out, are 1-2 cent per bushel. The legal rate as fixed by section

32, chapter 376, of the Laws of 1896, is 5-8 cent per bushel for elevating, receiving, weighing and discharging. This does not include storing. The regular railroad rate on grain from Buffalo to New York is 11 cents per hundred, averaging about 6 1-2 cents per bushel.

The average railroad freight rate between Buffalo and New York in recent years has been between 5 and 6 mills per ton per mile, while the average railroad freight rate in the United States for the year 1899 was 7.24 mills per ton per mile. It will thus be seen that water transportation is the cheapest form of transportation known and it will not be possible for railroad freight rates to reach the low cost of 26 cents for a ton of freight from Buffalo to New York. The improved canals will therefore become an absolute regulator of freight rates within this State.

Thos. W. Sherman, United States Consul at Liverpool, reports in 1890, in regard to the operation of canals in England, that "there is no doubt that canals have exercised a powerful influence not only in preventing the railway companies from charging much higher rates but in cheapening transportation generally over their routes." The greatest possible importance is attached in France, Germany, Belgium and Holland, and should be in this State, to cheap and adequate water transportation. While it is the province of railways to transport perishable freight and light and expensive tonnage as well as passengers, all at a high rate of carriage, it is especially the province of waterways to carry heavy tonnage at low rates. Mr. Conder, a distinguished engineer, made an official investigation into the cost of transportation and in his report of 1882 he shows an economy of 64 per cent. in freight rates by canal as compared with an equal volume of tonnage transported an equal distance by railroads. Mr. Krantz estimates the cost of transportation by canals in France, including interest and sinking fund, at about five-eighths the cost of railroad transportation. In 1890, official reports show that the cost of transportation on canals in the north of France was about two-thirds of the cost of transportation on railroads. In 1889 the Belgium canal coal rates were 89 per cent. of the rail rates.

From a report made by the United States Consul at Rouen in 1890, it appears that the cost of canal transportation did not average more than two-thirds of the cost of railroad transportation.

According to Malezieux, a French authority on the subject, the resistance to traction in water is only one-fifth of the average resistance on railways. Tractive resistance in canals increases, however, with the increased speed of vessels, and is largely conditioned on the size of the prism of the canal. Under all conditions, water carriage is cheaper than railway carriage, and this is the basic principle at the foundation of the transportation problem. This accounts for the fact that all Europe is intersected by a network of canals, over which a large part of the tonnage of each country is carried. Economy in transportation is the principal factor in industrial development of a country. A saving in freights on farm products, coal, merchandise and manufactured products is a direct gain to the consumer. All classes are benefited thereby. The agriculturist, the miner, the manufacturer and the merchant receive the benefit of cheap transportation.

In 1885 the Committee on Interstate Commerce of the United States Senate in its report to the Senate stated:

"The evidence before the Committee accords with the experience of all nations in recognizing the water routes as the most efficient cheapeners and regulators of railway charges. Their influence is not confined within the limits of the territory immediately accessible to water communication, but extends further and controls railroad rates at such remote interior points as have competing lines reaching means of transport by water. Competition between railroads sooner or later leads to combination or consolidation, but neither can prevail to secure unreasonable rates in the face of direct competition with free natural artificial water routes. The conclusion of the Committee is, therefore, that natural or artificial channels of communication by water, when favorably located, adequately improved, and properly maintained, afford the cheapest method of long distance transportation now known, and that they must continue to exercise in the future, as they have invariably exercised in the past, an absolutely controlling and beneficially regulating influence upon the charges made upon any and all means of transit."

This report is entitled to great weight because it emanated from the most important committee of the United States Senate after a most careful investigation into all the factors, entering into the transportation problem in the United States.

As long as our canals were able to control the bulk of tonnage passing between the Great Lakes and the ocean, the commerce of the port of New York increased annually; but when they began to be neglected and railway corporations began to make radical improvements in their roadbeds, increase the capacity of their freight cars and locomotives as well as utilize labor-saving devices for handling freight, as they have done under the broad-gauged and progressive railroad management of the past twenty years, then our canals were unable to compete successfully with them and overcome the differential rates established against the port of New York. It has taken some time to arouse the people to the gravity of the situation, and there has been a feeling in some localities that "the canals would be ground out of existence between the upper and the nether millstone of false economy on the part of some of the rural counties and inevitable rivalry of other carriers of freight." At last the people are awakening to a realization that something must be done to preserve the commerce of the State, which contributes in a great diversity of ways to the well-being of its people. Much time has been occupied in investigating the various questions involved. Acting in accord with prevailing public sentiment, the Legislature, by a substantial majority, passed the Canal Referendum bill, which has been approved by the Governor, to meet the exigencies of the commercial situation in this State.

Eminent citizens, who have made a study of the question and who are acquainted with the commercial needs of the State, believe that the proposed improvement of the Erie, Oswego and Champlain canals will solve the question, and they are unanimous in their advocacy of the Canal Referendum bill. It embodies the conclusions of expert engineers, prominent citizens and legislative committees, after several years' study of the questions involved and results to be at-

tained. It has all the safeguards suggested by experience and authorizes the appointment of an advisory board of consulting engineers, whose duty it shall be to advise the State Engineer and the Superintendent of Public Works, to follow the progress of the work and to report thereon to the Governor. This check ought to obviate any such difficulties or extravagances, as have heretofore occurred in the prosecution of public improvements.

The Referendum bill authorizes the issue of \$101,000,000, in bonds, maturing in 18 years, to raise funds for the construction of the enlarged Erie, Oswego and Champlain canals to a capacity adequate for navigation by barges carrying 1,000 tons. The canal prism will have a minimum bottom width of 75 feet, a minimum depth of 12 feet and a minimum water cross section of 1,128 square feet, but in rivers and lakes the canal prism will have a minimum bottom width of 200 feet, a minimum depth of 12 feet and a minimum cross section of water of 2,400 square feet. There will be 48 locks, 328 feet long, 28 feet wide and 11 feet deep over mitre-sills, so that two barges, each 150 feet long, 25 feet wide and drawing 10 feet of water, may pass through them at the same time. The route is known as the interior route between the Hudson and Niagara rivers.

The Erie canal will pass down the Buffalo harbor and the Niagara river to Tonawanda and thence along its present route to a point west of Rochester and thence south of Rochester across the still waters of the Genesee river to avoid the expense of an aqueduct, and thence eastward along its present route to Clyde and thence down the Seneca river to the Three River Point, and thence up the Oneida river through Oneida lake and Wood creek to the Mohawk river, and thence down that river to Cohoes falls and thence across to Waterford and over to Troy.

The Oswego canal will extend from the Three River Point down the Oswego river and the route of the present canal to Lake Ontario.

The Champlain canal will extend from Waterford up the Hudson to Fort Edward and thence along the route of the present canal to Whitehall.

The rivers through which the new canals are to pass are to be canalized. Abundant warrant for this is found in the thousands of miles of canalized rivers in Europe, which are in successful operation. This insures an abundant natural water supply two-thirds of the distance from the Great Lakes to the Hudson. Storage reservoirs will be constructed to supply such other waters as may be necessary and are not supplied by Lake Erie, the Genesee river and other intersecting water courses. Rochester, Syracuse, Albany and other cities are to be reached through artificial harbors connecting with the improved canals.

Thousand-ton barges will cost \$5,000 each and the steamers will cost about \$13,500. Each barge will carry 33,333 bushels of wheat and a fleet of three barges and steamers will carry 130,000 bushels, which is nearly equivalent to the carrying capacity of a train of one hundred freight cars of 80,000 pounds capacity each. Such a fleet would make ten trips annually at an annual expense of \$13,927.50, which includes all operating expenses, repairs, insurance, interest at 5 per cent. on the investment and a 5 per cent. allowance for deterioration. This brings the actual cost down to 26 cents a ton, or .52 of a mill per ton per mile, and if there be imposed a toll of 25 cents a ton to meet the accruing interest and principal of the sinking fund and to defray the operating expenses and cost of maintenance, still the canal rate will be far below railway freight rates.

In formulating and passing through the Legislature the Davis-Bostwick One Hundred and One Million Dollar Canal Referendum bill, the State has again demonstrated its courage to cope with great questions and re-affirmed her prestige for imperial greatness in commerce and in wealth. Its opponents proclaim it a gigantic undertaking. Its supporters answer that the Empire State ought to undertake nothing less. In an age of gigantic enterprises, when a single city does not hesitate to spend thirty-five millions on a subway, the State need not hesitate to spend one hundred millions in constructing waterways from the Great Lakes at the west and Champlain at the north to the Hudson, to float the vast commerce passing to and fro between those inland

lakes and tide-water. Hitherto such commerce has added very materially to the wealth and prosperity of its people. It is believed that it will continue so to do, provided the waterways of the State be so improved as to continue to control this vast commerce. The main objection to this proposed improvement is the expense, which, its opponents assert, it will entail upon the people of the State. The original cost, however, will not be serious when considered in the light of the aggregate wealth of the State. The aggregate assessable property of the State on September 30, 1902, was \$5,754,400,382. One Hundred and One Million Dollars is only one and three-fourths per centum of such wealth. What farmer would hesitate to paint his buildings at an expense of 1 3-4 per cent. of their assessed valuation, if he thought that would add materially to their durability and worth? In many cities and villages the annual tax rate is higher than this. If the entire one hundred and one million dollars were raised at a single tax levy, the rate would be about \$17.50 on a thousand of the assessed valuation of the property of the State, so that the small house-holder or farmer, whose property is assessed at \$1,000, would be required to pay but \$17.50. Surely this is not a fabulous sum, as is contended by anti-canal advocates. It would not be much of a burden if it were to be paid in one assessment. But under the Referendum bill its payment is extended over a period of eighteen years, so that the annual tax rate will not exceed \$1.30 on \$1,000 worth of property, to pay both the interest and entire principal of the proposed canal debt. And if its payment be extended over a period of fifty years, as proposed by the Constitutional Amendment, which has already passed one Legislature and will undoubtedly pass the next Legislature and be approved by the people in 1905,¹ then the annual tax rate will not exceed seventy cents on \$1,000 worth of property. Furthermore, these assessments will decrease as the assessable property of the State increases.

1. It so passed the Legislature and was approved by vote of the people, Nov. 7, 1905.

One day's wages of a common laborer, or six pounds of butter, or six dozens of eggs, eight or ten cans of fruit or vegetables, ten or twelve pounds of grapes, will pay the annual tax for the construction of the enlarged canals, on a farm, or house and lot assessed at \$1,000. One hen will lay eggs enough annually to pay such tax and to start a brood of chickens on the farm of the son-in-law.

In addition to the original cost of construction, operating expenses and cost of maintenance will not necessitate a tax exceeding 36 cents on \$1,000 and possibly no direct tax whatever for that purpose, for it is quite likely that a large part of the canal debt and operating expenses will be met by moneys arising from indirect taxation. In that event no tax whatever may be necessary.

A year ago I formulated a Constitutional Amendment to meet such an exigency and to permit the application of surplus moneys in the Treasury to the liquidation of State debts and the suspension of the annual tax now required under the Constitution to meet the accruing interest and principal of the bonded debt of the State. That Amendment has passed two sessions of the Legislature and will be voted upon in 1905. I also presented at the last session another Constitutional Amendment, which passed, to extend the bonding period from 18 to 50 years, and undoubtedly that will pass the next Legislature, having a new Senate, and be submitted to the people in 1905.¹ This latter amendment will enable all the canal improvement bonds, except the first \$10,000,000, which can only be issued within the first two years after the Referendum law is approved, to be issued for a period of 50 years.

The Canal Referendum bill, introduced by Senator George A. Davis, and the two proposed Constitutional Amendments, introduced by me, together constitute a complete legal and constitutional body of law, under which the improvement may go forward and the indebtedness created therefor may be liquidated without the imposition of any appreciable burden upon the taxpayers of the State. It is

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possible that the canals may be improved in the manner proposed for less than the amount stated. It will be remembered that the engineers in charge of the survey made liberal estimates for all work to be done, and it is but reasonable to assume that the volume of work is so great that new and improved mechanical devices will be utilized, which will result in materially reducing contract prices and in the aggregate saving of several millions of dollars. Such has been the experience of the Federal Government in the performance of its extensive public improvements, and notably so in the construction of the new breakwater at Buffalo, where the work was completed for about 20 per cent. less than the estimated cost.

In the consideration of such important public improvements as that contemplated, it is well to bear in mind that the large influential counties of right ought to have their interests fairly considered, because they bear the burden of taxation to support the State Government. The thirty-one canal counties in direct touch with canal transportation include more than 90 per cent. of the assessable property, and therefore pay more than 90 per cent. of the State taxes; whereas the 30 counties not in direct touch with canal transportation do not include more than 10 per cent. of the assessable property and therefore do not pay more than 10 per cent. of the State taxes. The three large counties of New York, Kings and Erie, include 69 per cent. of the assessable property and pay 69 per cent. of the State taxes. Several of these non-canal counties for many years have been receiving more money out of the State Treasury for school purposes than they have paid into the State Treasury for all governmental purposes, so that they are in fact recipients of, rather than donors to, the State Treasury. We do not complain of this, however, provided they do not array themselves in opposition to these measures, which the people of the canal counties believe to be of interest to them as well as the people of the very counties interposing such opposition.

In the course of his speech in the Senate of the United States in reply to Mr. Hayne, Mr. Webster said:

"We do not impose geographical limits to our patriotic feeling, or regard; we do not follow rivers and mountains and lines of latitude, to find boundaries beyond which public improvements do not benefit us. If a railroad or a canal, beginning in South Carolina and ending in South Carolina, appeared to me to be of National importance and National magnitude, believing as I do that the powers of the Government extend to the encouragement of works of that description, if I were to stand up here and ask, 'What interest has Massachusetts in a railroad in South Carolina?' I should not be willing to face my constituents."

If such were the spirit of the distinguished New England statesman towards South Carolina at that crisis, what ought to be the attitude of the rural communities of this State toward the large centers of population that consume their products, on a question of such vital importance as the pending canal question is to such centers of population? As the latter increase, their demands will increase and ready markets are thus afforded for everything that the farmer can produce. His hay and grain, fruit, vegetables and dairy products find ready sale at fair market prices, and this condition increases the value of his land over that of farms remote from or inaccessible to ready markets. This will increase the wealth of the State. More than a century ago, Alexander Hamilton said that "A prosperous commerce is perceived and acknowledged by all enlightened statesmen to be the most useful as well as the most productive source of national wealth; and has accordingly become a primary object of their political cares." Thomas Jefferson thought that "All the world would gain by setting commerce at perfect liberty." It has been said that "the commerce of the Phoenicians made Tyre the crowning city, whose merchants were princes, whose traffickers were the honorable of the earth, and that wherever a ship could penetrate, a factory be planted, a trade developed or created there were found these ubiquitous, these irrepressible Phoenicians."

The Venetians, the Pisans, the Genoese, the Hanseatic towns, Flanders, the Spaniards, the Portuguese and the Dutch flourished as long as they maintained an active commerce. New York has the commerce, industries, agricul-

tural and mineral wealth and population of an empire. Its natural advantages are second to those of no other State. The Great Lakes float the commerce of the Middle West to her ports at the east end of Lake Erie and Lake Ontario and the Atlantic bears on its bosom argosies richly freighted with the products of other continents to her great emporium at the confluence of the Hudson and East rivers. A magnificent system of artificial and natural inland waterways has connected these larger bodies of fresh and salt waters, over which has been transported the grains of the West and the imported products of the East.

In addition to one or more millions of tons of through freight so transported annually over our canals, there has also been transported and distributed to the various cities, towns and villages one or more millions of tons of way freight and latterly the way freight has been gaining on through freight. Such industries as the salt industries at Syracuse and the steel industries at Buffalo and at Tonawanda, which consume large quantities of New York ores and other mineral products, will greatly augment the volume of way freight in the future. Other industries will spring up all along the line of the canals, as soon as they are enlarged in the manner proposed. There has been a marked increase in the volume of tonnage moving westward this season, and that will continue as the demands of the West upon the manufactured products of the East become more extensive. The annual saving in freight rates on local canal tonnage will undoubtedly be sufficient to defray the operating expenses and the cost of maintenance of the improved canals. Large manufacturing industries and populous cities will create business for the railroads.

It must not be assumed that canal advocates are opposed to railways, for such is not the case. Both methods of transportation are necessary and supplement, rather than supplant, one another. In several European countries where canals parallel railroads, the traffic on such railroads has increased while the traffic on the canals has also increased. A French legislative committee, appointed to investigate the comparative advantages of the two methods of trans-

portation for the purpose of further legislation, a few years since, reported as follows:

"It is conceded that waterways and railways are destined not to supplant but to supplement each other. Between the two there is a natural division of traffic. To the railroad goes the least burdensome traffic, which demands regularity and quick transit; to the waterways gravitate the heavy freights of small value, which can only be transported where freights are low. Waterways, by increasing traffic, are rather the auxiliaries than the competitors of railroads. In procuring for manufacture cheap transportation for coal and raw materials, they create freights whose subsequent transportation gives profit to the railroads."

Mr. S. A. Thompson in the *Engineering News* of July, 1902, states that "since 1814 France has expended more than \$750,000,000 on its waterways, \$700,000,000 on its railways and \$650,000,000 on its wagon roads, and the French Chamber of Deputies has recently appropriated \$132,500,000 for the construction of canals and the improvement of rivers and harbors in the Republic."

In 1887, the German Government decided to improve 1,500 miles of canals and canalized rivers, notwithstanding it then had in operation 1,289 miles of canals and 4,925 miles of canalized rivers, and then owned and operated 14,665 miles of the railways out of the 16,281 miles of railways in that empire.

This is the most striking illustration of the practical operation of the two systems of transportation, of which there is any record. The German Government reached the conclusion that it was more economical for it to construct such additional waterways to handle heavy freight and to bear the expense thereof than to continue to transport such heavy traffic on its railways. This ought to be a complete refutation of the visionary theories of those who assert that canals as means of transportation have outlived their usefulness: that they are no longer important factors in promoting the commerce of a State or nation; that they are antiquated in their methods of handling freight and are already superseded, or are destined to be superseded, by railroads or electric transportation. How are we to account

for the fact that nearly all modern nations are expending extraordinarily large sums of money in constructing artificial waterways? Is it because they have outlived their usefulness, or that they are no longer important factors in promoting commerce, or is it on account of the antiquated methods in use upon them? Certainly not. All progressive nations use artificial waterways as a means for transportation of bulky and slow moving freight. Within the last ten years the Canadian Government has expended several millions of dollars in improving its waterways. England has constructed the Manchester ship canal at an expense of \$75,000,000. Germany has constructed the Baltic and North Sea canal at a cost of \$37,122,000. In 1900, the Elbe-Trave canal was completed at a cost of \$5,831,000, and many other smaller canals, similar to the proposed enlarged Erie, Oswego and Champlain canals, have been constructed recently and are in successful operation in Europe. The proposed improvement can go forward within a year or less from the time of the approval of the law at the next general election.

The United States Government has jurisdiction of the waters of the Hudson river, and will undoubtedly make provision for dredging that river to Troy in some of its colossal river and harbor appropriations, if the people along the Hudson river will present the matter to Congress. It is quite likely that an appropriation will be made by Congress to deepen the channel down through the Buffalo harbor into the Niagara river, as a survey is now being made by the United States engineers. All commercial interests are agreed that the Thousand Ton Barge Canal is the largest canal that can be economically operated in this State and for which an adequate supply of water may be obtained.

There are insuperable difficulties to the operation of a ship canal. First, there is doubt as to the adequacy of the water supply. Then again, it is a well-known fact that ocean-going vessels must be strongly built to withstand the storms of the ocean, and the amount of dead weight in such vessels is much greater than in lake-going vessels, built to navigate the Great Lakes. Lake vessels have more dead

weight than canal barges, which will navigate the still waters of artificial waterways. Ocean-going vessels are therefore much more costly in proportion to their carrying capacity, than are lake vessels, and lake vessels are much more costly in proportion to their carrying capacity than will be thousand-ton barges. Furthermore ocean-going vessels draw from 25 to 35 feet of water; lake-going vessels draw from 15 to 20 feet of water, and thousand-ton barges will draw from 10 to 10 1-2 feet of water. If a ship canal were constructed from Lake Ontario to the Hudson river, it would not be profitable for either ocean-going or lake-going vessels to undertake to navigate it because the delays incident to canal navigation would be ruinous to the investment of capital in such vessels. The experience of vessels navigating the Suez canal, which is only 96 miles long and more than half that distance made up of natural bodies of water, is such that the masters of many vessels prefer to round Cape of Good Hope rather than endure the long delays in passing the Suez canal.

Neither would the navigation of such a canal be profitable for lake-going vessels for the same reason. Both ocean-going and lake-going vessels must sail rapidly to make any profit on the investment of capital in them at the low freight rates that are necessary to compete with the railroads. And I can hardly imagine a more ludicrous condition of things than to see two ocean-going vessels trying to pass each other in a ship canal and have a break or a blockade occur whereby they are delayed, while a modern freight train with a hundred thousand bushels of grain rushes by to the sea to overhaul some swiftly sailing ocean-going steamship at any one of the Atlantic ports.

In addition to these objections there is the still further objection that the harbors and channels of the Great Lakes and connecting rivers are not dredged deep enough to admit of any large ocean-going vessel navigating them. The maximum depth of the rivers and harbors of the Great Lakes as established and constructed by the United States Government is but 22 feet, and it would cost millions of money to deepen them so they could be navigated by ocean-going

vessels. It cost the United States Government six millions of dollars to construct the Eastern channel through the Bay of New York, which channel is 2,000 feet wide and 40 feet deep, and but a few miles long. This improvement was necessary to accommodate the larger type of ocean-going vessels, so that they could enter the port of New York. It will readily be seen that it would be entirely impracticable to undertake to deepen the rivers and harbors of the Great Lakes, so that ocean-going vessels could navigate them. Each of the three bodies of water requires its peculiar type of vessel and these types of vessels are the only types of vessels that can successfully navigate the bodies of water for which they were respectively constructed.

This is a complete answer to the advocates of a ship canal from Lake Ontario to tidewater. If there were no other objections to such a canal, it is not likely that rival Atlantic ports and competing railroad lines would consent to the construction of such a canal at national expense through the State of New York to divert foreign trade and domestic traffic from such rival ports and competing railroad lines to the port of New York and to the New York railways and waterways. From the inception of our canal system to the present time there have been those who have opposed every measure, designed to improve or extend it. At some periods the opposition has been so intense as to defeat any measure that was proposed, still there have been a sufficient number of New York's foremost citizens in favor of their maintenance thus far to preserve them from abandonment.

The spirit that inspired Dewitt Clinton has descended upon other generations of men, who have been inspired by lofty conceptions of duty and they have not failed to do their part to perpetuate the policy, which he inaugurated more than three quarters of a century ago. The inertia of conservatism has been an ever present barrier to the State's commercial progress.

However this is true of all progress. "Of all the difficulties," says Mr. Quincy, "that were met in establishing locomotion by steam, the obstruction offered by blind, stolid unreasoning conservatism was not the least." The progres-

sive spirit of the age, however, that bridges rivers and tunnels mountains, that waters deserts and fertilizes plains, that cables oceans and explores continents, that makes cataracts propel the wheels of industry and utilizes the atmosphere as a vehicle for man's thoughts, that transforms the thunderbolt into controllable energy to serve man's purposes, will overcome all conservatism and keep New York at the head of the column of the states of the Union, in commerce and in all other essentials of a progressive civilization.

ERRATA

- PAGE 45. For "Col. William Bradstreet" read "Col. John Bradstreet."
 P. 113. "Largest single cargo of grain ever transported over water" should perhaps be qualified to read "over fresh water."
 P. 114. For "F. A. Mahan" read "A. T. Mahan."
 P. 147. For "Seneca Lake Navigation Co." read "Seneca Lock Navigation Co."
 P. 184. For "Ensel Bascom" (16th l. from top) read "Ansel Bascom."
 P. 192. For "Mr. Blanchard, president of the Erie Railroad" read "George R. Blanchard, assistant to the president (afterward first vice-president)."
 P. 298. For "Morris K. Jessup" read "Morris K. Jesup."
 P. 341. For "J. Howard Mason" read "F. Howard Mason."
 P. 360. For "Patrick W. Callinan" read "Patrick W. Cullinan."
 P. 374. For "Thomas B. Dun" read "Thomas B. Dunn."
 Pp. 378-9. For "October" 23 and 24 read "September" 23 and 24.
 P. 394. For "O. A. Bogardus" read "O. H. Bogardus."
 P. 405. For "John K. Patten" read "John K. Patton."
 P. 425. For "Frank Brainerd" read "Frank Brainard."
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HENRY WAYLAND HILL

